Keeping infrastructure projects on track with effective governance structures

Kamminga, Y.P.

Publication date:
2009

Document Version
Publisher's PDF, also known as Version of record

PSIBouw
netwerk van vernieuwers

Keeping Infrastructure Projects on Track with Effective Governance Structures

Developing 'checklists' for optimal collaboration between clients and contractors based on a study of social psychological, economic and legal theory

Y. PETER KAMMINGA

Research Report Project V 312

Y. Peter Kamminga

Y. Peter Kamminga

PREFACE

The study this report draws upon was finished in December 2008 and was defended as a Ph.D. thesis at Tilburg University. Supervisors were Prof. Mr. J.M. Barendrecht (Tilburg University), Prof. Mr. M.A.M.C. Van den Berg (Tilburg University), and Prof. Dr. F. Fleerackers (Catholic University Brussels, MIT and Harvard University). Members of the Ph.D. committee were Prof. L. Blomgren Bingham (Indiana University), Prof. Dr. J. Martinez (Stanford University), Prof. Dr. A.L.P.G. Verbeke (Leuven University and Tilburg University, Harvard University), and Prof. N. Welsh (Penn State University). The writer wants to thank in particular Prof. Dr. R. Mnookin (PON/ Harvard University), Prof. Dr. L. Susskind (MIT) and Prof. Dr. J. Salacuse (TUFTS, Fletcher School of Business) for helpful remarks and comments on the study.

This publication falls within the scope of the PSIBouw Research Program. It has been made possible with funding provided by PSIBouw and Tilburg University.

Tilburg, February 2009.

Y. Peter Kamminga

CONTENTS

LIST OF FIGURES

INTRODUCTION

During the last two decades, the construction industry sought to improve the performance of infrastructure development. Projects aiming at the construction of roads, railroads, bridges, tunnels, and other public infrastructure often do not meet the project goals. All over the world, they have a reputation of performing badly in terms of construction time, construction costs, and the quality of the end product.

The performance of these projects may be influenced by many stakeholders in various stages of the project and/or a range of circumstances. However, most evaluation studies indicate that the collaboration process between the project participants directly involved in the construction is the main factor influencing project success.

This report presents the main findings of a more extensive interdisciplinary study into factors that influence collaboration in infrastructure projects. For a more thorough analysis and a presentation of the theories and empirical findings on which the recommendations are based we refer to the main study "Towards effective governance structures for contractual relations: recommendations from social psychology, economics and law for improving project performance in infrastructure projects."

This report starts with an introduction of the subject and an overview of the main study and its methodology (Chapter 1). Consequently, it gives the main conclusions about the importance of collaboration, its relationship to project performance and the used governance structures in infrastructure projects. It also shows the main conclusions based on an analysis of the relational contracting models partnering and alliancing, as well as the instrument of Dispute Boards (Chapter 2). After that the main findings resulting from the analysis of social psychological, economic and legal theories and empirical findings are discussed. It includes the main factors influencing collaboration processes and some conclusions (Chapter 3). The recommendations are presented in two 'checklists.' One focusing on developing mechanisms that may contribute to project success and the other on how collaboration may be facilitated throughout the different stages of the construction process (Chapter 4). Chapter 5 includes the

main conclusions of the study. This report also includes a summary in Dutch.

Y. Peter Kamminga

CHAPTER 1

I OVERVIEW AND METHODOLOGY OF THE MAIN STUDY

The goal of the main study as well as this report is to provide a systematic approach to improve collaboration to achieve project success. To develop such a system, we are examining in the underlying study the interaction over time of entities (clients and contractors) represented by human actors. We develop recommendations that can be used to improve the interaction between clients and contractors and their representatives. To build the actual structure for collaboration the recommendations may be implemented in the governance structures for infrastructure projects, such as contracts, tender regulations, and codes of conduct.

We derive the recommendations from three theoretical and empirical bodies of research on cooperation: social psychology, economics and law. All three fields are relevant in a study of the interaction in these projects, as the human actors in infrastructure projects *perceive* and *interact* as described by social psychologists but they *analyze* the situation based on rational choices of their principals, and are *subject to* the legal framework binding their principals as entities.

Scholars have been examining the influence that client and contractor behavior during the tender and construction stages has on infrastructure project performance. They have identified fthe critical factors that increase the probability of a successful project and five factors that are likely to lead to failure. Together, these factors can be considered as nine variables that are strongly related to project success. The variables derived from success factors are commitment, competence, interaction, communication, monitoring, and feedback. Variables derived from factors leading to failure are conflict, ignorance of project management, bureaucracy, aggressive competition at the tender stage, and short bid preparation time. Any actions by the parties to increase the value of each of these variables positively can be called Project Success Mechanisms.

We found that most, if not all, of these variables for project success influence the way clients and contractors collaborate. For that

reason, this report focuses on collaboration. We consider collaboration to be an *instrumental* variable for the range of abovementioned factors that influence project performance. This observation seems also to be the shared assumption underlying numerous commission reports and other efforts to improve the performance of infrastructure projects.

In this report we define collaboration as *the human interaction process between parties (people or entities) in the light of a joint activity*. We consider collaboration to be successful when the parties' interaction process leads to achieving or surpassing the project goals. The assertion that collaboration is a necessary instrument to cope with the technical, political, and human challenges and complexities of infrastructure development is reflected in the solutions that have been proposed and implemented and are meant to stimulate collaboration: Relation Contracting Models such as partnering, alliancing, and the instrument of dispute boards.

The literature shows a mixed picture about the extent to which these relational contracting models actually improve collaboration in infrastructure projects. Evaluation studies identify problems related to commitment (pressure on contractors), conflict management, lack of adequate skills, maintaining cooperative attitude in the later stages of the project, and costs of implementing the cooperative processes. As we will see, some of the key variables for project success emerge again in this literature.

In the practice of working with the relational contract models, there is still a need for mechanisms that influence these variables in a positive way. In particular, many elements of the present *governance structures* in infrastructure projects (culture, contracts, regulation of tendering, project management) still seem to endanger successful collaboration, as they enhance conflict and adversarialism.

Clearly, incorporating collaboration and anchoring it well calls for a broader and more *systematic approach*, going beyond relational contractual models as such. We take this broader approach in order to identify interconnected actions or interventions that make succesful collaboration more likely. They may be regarded as a counterbalance for the natural competition existing in the infrastructural environment.

By reviewing three main bodies of research related to cooperation in general, we identify factors that are likely to contribute to or endanger a successful collaboration process. The scope of the review is the extensive literature on cooperation. The focus is on theories and

empirical findings (in the fields of social-psychology, economics, and legal studies) as far as relevant for the interaction in infrastructure projects. From these fields of literature, we derive *factors* that influence clients and contractors collaboration, and we make *recommendations* that are likely to help the parties involved in infrastructure projects to instill and maintain successful collaboration. Together these recommendations may be regarded as potential interventions that are each individual pieces of the larger systemic approach.

Finally, we show what the systematic approach may look like and *how* and *where* the recommendations may be implemented in infrastructure projects. We discuss the following: 1) how recommendations can be implemented in project success mechanisms, 2) the stages of the construction process in which they can be applied, and 3) in which governance structures (tender regulations, contracts, code of conduct) to implement them.

1 Overview of the main study: methodology, key concepts, and scope

In this section we present a more detailed overview of the main study with a description of methodology and scope. The study consists of three parts. We begin the outlines of each part with the research questions, we address the method used to answer these questions, and highlight what includes the analysis and what falls outside the scope.

The central research question of the underlying study is:

- *How to instill and maintain a collaboration process between clients and contractors in infrastructure projects that contributes to project success (meeting and surpassing project goals).*

1.1 Part I Collaboration, governance structures, and project performance in infrastructure development

The central question of Part I of the study is:

- *How does collaboration between clients and contractors influence project performance?*

The sub-questions of Chapters 1 and 2 of the main study are:
- *What are the variables of project success?*
- *How can clients, contractors, and the interaction between them influence project performance in infrastructure development?*
- *What are the main barriers to improving project performance of relational contracting models?*

1 Criteria for project performance

To examine the problem of poor project performance, we first turn to the literature to identify "indicators of project performance". We draw the most often used project performance criteria from empirical studies into project success (*Chapter 2 main study, Section 2.2*).

The most frequently used criteria to measure project performance are construction time, construction costs, and quality of the end product. Other criteria that indirectly influence time cost and quality are the amount of conflict within projects, the number of claims, and satisfaction with the process of construction. They are not central in the reasoning, but when they are illustrative for the point we will refer to them in the main study.

We also discuss two recent large-scale empirical studies. The authors studied the reasons for poor project performance (construction cost overrun and delay). They illustrate the significance and global nature of the problems of cost and schedule overruns as construction projects (*Chapter 2 main study, Section 2.6*). We selected the studies we use and choose those most frequently cited in the specific research field. We also reviewed studies in top-tier jthenals in the field of construction management as well as legal literature on contracts and legal problems that frequently arise in infrastructure projects.

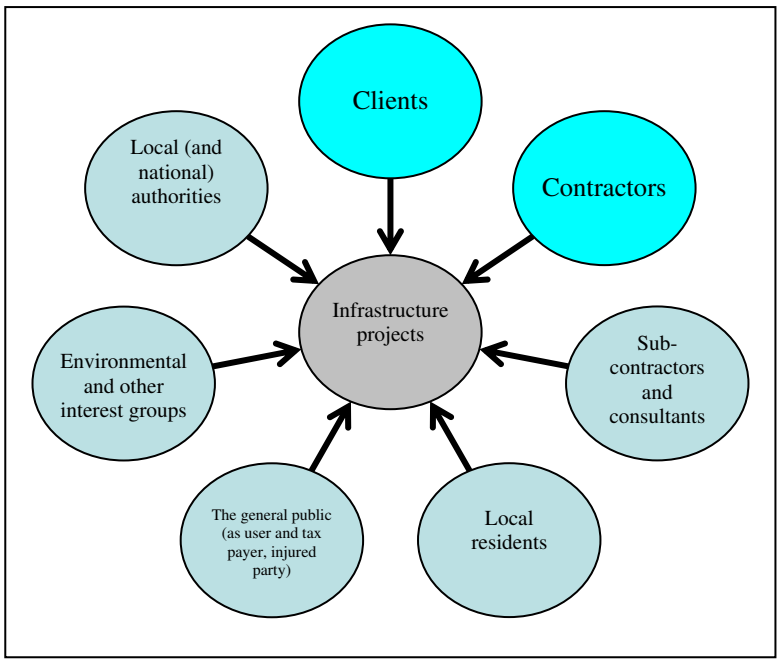

Figure 1: Client, contractor, and other stakeholder groups of influence on performance of infrastructure projects

2 *The client and contractor as key players in infrastructure projects*

Various factors influence performance of infrastructure projects (Figure 1). In the analysis of the causes of poor project performance, we focus on the main players and their interaction (client and contractors). Various factors related to the characteristics of the parties, their interaction, and relationship have been found key to project success, as we will see (*Chapter 2 main study, Section 3*).

The client and contractor are most interesting for us, as they are the parties who are eventually responsible for the construction process and the project performance. They are the founders and set the tone in the cooperation process, and design a part of the legal structure for projects. Moreover, by their behavior they influence the process of construction of projects and their success. It is also they who enter into the main contract and involve, manage, or deal with the other stakeholders, such as sub-contractors and interest groups.

Once a framework for successful collaboration is established between these two players, it may be further extended or transplanted to the other parties involved in a project, such as sub-contractors. Within the group of clients, we are mainly interested in governmental purchasers, as they are the purchasers of the majority of infrastructure projects (*Chapter 2 main study, Section 3.1*).

3 Parties and representatives: Principals and human agents

We zoom in on the people working for the clients and contractor organizations that are involved in projects. They are tender specialists, contract managers, legal professionals and consultants working for either the client or contractor. The representatives with the most influence are those united in the project organization (generally consisting of a client and a contractors team).

Between the organizations and their representatives exists a principal-agent relationship (reflected by an agreement in which the principal engages the agent, acting on behalf of the principal, who attributes some decision-making power to the agent).[1] These parties are the "human agents" representing their "principals" during the tender, construction, and maintenance stages.

Formal (legal) or informal rules will guide the principals and their representives behavior. However, to be represented adequately, the principals may also want to instruct their agents on how to collaborate with representatives of the other party, as the preferences and incentives between client and agents may differ. By providing a certain mandate for negotiation and dispute settlement, giving incentives (for instance in the contract), and monitoring systems, principals influence the behavior of their representatives at projects.

In this report we focus on the interaction of the parts of the client and contractor entities involved in an individual infrastructure project and on the interaction between their individual agents. We only indirectly address the role of the (management of) the clients' and contractors' mother organizations, which are bound by the actions of their representatives. These entities play an important role in the background during all stages of the construction process. They are setting the stage, and their actions may affect the collaboration process

[1] See e.g. Mnookin et al. (2000: 69) (addressing the dynamics of the principal agent relationship in general and between clients and lawyers in particular).

between their agents at the project level (for instance, by approving decisions, giving mandates, and supporting the collaboration process) (*Chapter 2 main study, Section 3*).

4 Variables of project success and project success mechanisms

From empirical studies on project success we distill variables of project success that parties influence with their behavior. We draw nine project success variables from the most frequently cited studies by Larson 1997; Black et al. 2000; Cheng and Li 2002, and we include an evaluation of the most frequently cited factors in a number of other influential studies reviewed by Nystrom 2005 (*Chapter 2, main study Section 2.4*).

Next, we discuss that these variables may be positively influenced by the parties in order to achieve project success. Realizing project success requires investment in project success mechanisms that (positively) influence these variables. We distinguish between actions the parties may take to contribute to a more positive value for each of these variables (project success mechanisms). In partnering literature, we find a number of these mechanisms aimed at contributing to project success.[2] Examples are workshops to stimulate the interaction and communication or pain/gain share terms in contracts meant to strengthen the commitment to project goals.[3] We distinguish between commitment mechanisms; selection mechanisms; training mechanisms; interaction and communication mechanisms; decision-making mechanisms; conflict identification and management mechanisms; monitoring and feedback mechanisms; and mechanisms for setting a cooperative atmosphere (*Chapter 2, main study Section 2.5*).

5 Collaboration: Instrumental for project success

The abovementioned project variables are all strongly related to the collaboration process between client and contractor (Figure 2). In this report we consider the collaboration process between client and contractor as *instrumental* to realizing projects. Throughout the

[2] See for an overview of these tools and the contribution to project success factors, Bayliss (2004).
[3] See e.g. Chapter 3, Section 5 of the main study.

project clients and contractors need to coordinate their actions; in the first stage of a project the contractors need to obtain the information from the client, necessary to do an adequate bid on a project, and the client needs to collaborate with the contractors to receive adequate bids. In the second stage, after a contractor is selected, client and contractors need to coordinate their actions to realize a project.

This suggests that the level of project success (the extent to which parties meet or surpass their project goals) depends on (is a dependent variable of) the parties' collaboration process (*Chapter 2, Section 3.2*).

Building upon the assumption that collaboration is instrumental to project success, we assert that if the parties involved in infrastructure construction are able to create and maintain a successful collaboration process, they are more likely to achieve or even exceed project goals regarding cost, time, and quality.

This seems also the assumption underlying various government reports that discuss the problem of poor performance of infrastructure projects. The writers of these reports generally say that improving collaboration is necessary to deal with the complexity and challenges of these projects. However, clear empirical support for this claim is lacking. Therefore, in Part II of the main study (*Chapters 4-7*) we review theory on cooperation to evaluate and refine this general claim.

6 Innovation, stakeholder groups, and unforseen circumstances: External influences impacting project success

In addition to the quality of the parties' collaboration process, there are many other factors that influence project performance (Figure 1). Examples are technical innovation, decisions, and actions of government agencies or third parties (project stakeholders) that may either facilitate or stand in the way of project success.[4] In the study, we take those external factors indirectly into account. We consider them as challenges parties deal with during projects by adjusting to them. To do so, their collaboration process is instrumental. They need to decide on using technical innovations and organize the interaction with third parties such as governmental agencies or others affected by the project. In other words, these external influences are addressed as

[4] See e.g. Olander and Landin (2005: 321) for empirical data on the influence of project stakeholders on projects.

factors that complicate these projects and affect the parties' collaboration. However, they also have to deal with these factors in collaboration (*See Chapter 2 main study, section 3.3*).

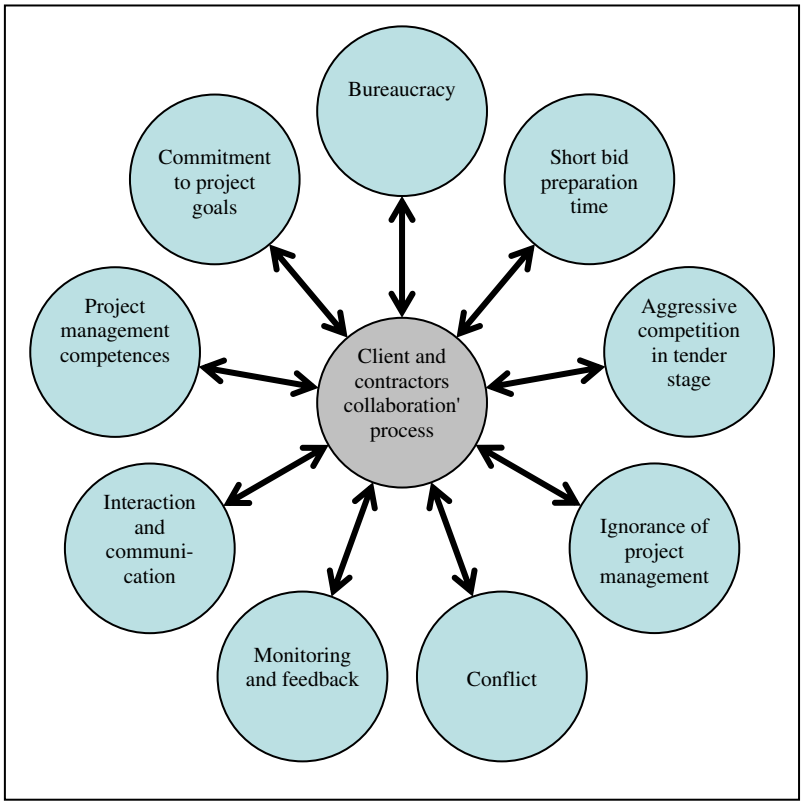

Figure 2: Project variables and the client-contractor collaboration process

7 Defining (successful) collaboration in infrastructure projects: Cooperation and collaboration and project success

The definition of collaboration as we use it in this report consists of the main characteristics of this process, drawn from negotiation literature: 1) *the human interaction process of (2) the parties (client and contractor) undertaking a (3) joint effort to (4) realize goals they cannot realize alone, through (5) cooperative behavior.*

Cooperation is a term broadly used to describe that people are working together. There is no widely agreed upon definition available.

It is a concept with various meanings and may be used objectively and subjectively, substantively, procedurally, and behaviorally.
Hereinafter we mainly use the concept cooperation, as the term is often used in sociology, psychology, and organizational and public management literature. We use it in the behavioral sense: (a process of) cooperative behavior between people or entities.

To distinguish cooperation in its behavior perspective from the other meanings, we use the terms "*collaboration"* and *"collaborative process."*

We use the terms "cooperation" (and "cooperate") where we refer to the research literature on cooperation and concepts in that literature (such as cooperation as "strategy" (as opposed to defection); as "approach" in interactions with others ("cooperative behavior"); as relationship that faciliate collaboration ("cooperative relationships"), and where we refer to situations in which people work together ("cooperation situations, atmospheres or environments").

We constructed the definition as follows. From negotiation literature we isolated defining principles of cooperation from a behavioral view. Deutsch describes a cooperation situation as "a situation in which the goals of the participants are so linked that any participant can attain his goal, if, and only if the others with whom he is linked can attain their goals."[5] The act of cooperation, such as by representatives of clients and contractors, is referred to in most of these readings as "a process," "practice," or "(line of) behavior."[6] For instance, De Dreu et al. define cooperation as "behavior that maximizes the outcome (or well-being) of a collective."[7] In literature on inter-firm cooperative processes, it is defined as a continuous cycle of actions and reactions between collaborating partners.[8] In literature on collaborative public management the term collaboration is used for situations where "businesses, the government and public as a whole (cross-sector collaboration) link or share information, power, capabilities (etc.) to achieve jointly what could not be achieved (…) separately".[9]

[5] See Deutsch (1973). See also Johnson and Johnson (1989).
[6] See for instance, De Dreu and De Lange (2003: 343); Korobkin (2002: 1).
[7] De Dreu and De Lange (2003: 343).
[8] See e.g. Parkhe (1991: 581); Lui and Hang (2005);
[9] See Bryson and Crosby (2005: 56).

The basic characteristics of collaboration we draw from these fields of literature that are relevant to describe the interaction between clients and contractors in infrastructure projects are the following:[10]

- Collaboration is a process that takes place "between two or more people or organizations also referred to as "parties."[11]
- The parties embark upon a "joint" or "collaborative effort" instead of competing with each other. They work together instead of trying to reach relative advantage over others."[12]
- The parties are working towards "goals."[13] Parties generally have a mix of convergent and divergent goals, but at least some of the goals they both are committed to obtaining (common goals). The parties have common goals when they try to realize goals they would be incapable of accomplishing when working alone (they are interdependent).[14]
- The parties show cooperative behavior (willingness to cooperate) resulting from some form of commitment (as opposed to being coerced to cooperate).[15]

These characteristics of collaboration apply to the situation of infrastructure projects. First, there are several *parties* involved in the construction of an infrastructure (the focus is on clients and contractors and their representatives). Second, realizing a project is a *collaborative effort*; all parties need to interact/work together and coordinate their actions. Third, the parties have their separate goals but also *shared goals*. Their main shared goal is the construction of an infrastructure work.

As we focus on collaboration as an important means to reach project goals, we choose to define *successful* collaboration in terms of project goals. The definition that we use for successful collaboration is *the human interaction process through which parties achieve project success (to meet or surpass project goals)*.

[10] Cf. Lewicki et al. (2007); Cf. Rubin and Brown (1975); Axelrod (1984; 1997).
[11] Lewicki (2007: 6) for characteristics of a negotiation situation.
[12] Lewicki (2007: 60).
[13] Their purpose is also described as reaching "mutual outcomes, mutual benefit or mutual win", "commonly agreed upon" or "collective goals." Cf. Lewicki (2007: 77) who distinguishes between common, shared and joint goals. De Dreu and De Lange (2003); Deutsch (1973); Bryson and Crosby (2008).
[14] See e.g. Lewicki (2007: 9).
[15] See Anderson and Narus (1990). Morgan and Hunt (1994).

In this report *project success* means that the end product, for example, a tunnel, is realized, meeting or surpassing the project goals in terms of time and costs (if possible, ahead of schedule by using innovative techniques or processes), and be of the agreed upon quality level or higher (meeting or surpassing the agreed upon quality standards). Where relevant, we take into account the amount of conflict parties encounter during the construction process, the number of claims, and the parties' satisfaction with the construction process. These are factors indirectly influencing the construction costs, construction time, and the qualitylevel.

8 Collaboration and individual aspirations: Collaboration as counterbalance to competition

In situations where people work together, there is a tension between cooperating and competing. To achieve 'project success', the parties need to do both: collaborate but at the same time also pursue their individual aspirations.

First, for people to successfully collaborate, they need to be motivated to do so. In the adversarial world of the construction industry, it is almost a certainty that successful collaboration does not arise spontaneously. In general, people are driven by their own interests and do not necessarily care about the interests of the partner they are in a business relationship with.[16] Yet, for collaboration to be successful, it is necessary that the parties choose cooperation as a strategy rather than competition.[17]

Therefore, we assume that clients and contractors only choose to collaborate with another party if, and as long as, there is something to gain from it. That means cooperative behavior arises only in those situations in which people perceive the benefits of cooperating to be higher than those of competing.

As we illustrated, clients' and contractors' main shared interest is the construction of a project. They both want to realize an infrastructure work. However, the parties' interests may differ regarding the quality of the work and the costs. A contractor's main interest in striving for the goal is the possibility of making benefit on a project and, if possible, building a solid reputation that brings him

[16] An influential economic theory that describes this behavior is rational choice theory.
[17] See also Lewicki (2003: 85).

future projects. A client's main interest is to create a functional project that lasts for a long time and for a reasonable price. Shared goals are also created through agreement between parties. For instance, in the offer to bid, a client specifies the conditions for the infrastructure project, its quality, the time frame for construction, and the total costs. The contractor who realizes the work commits to meeting those conditions in the agreement.

What further complicates maintaining a successful collaboration process is that interests change over time as circumstances change. Initially, the parties in infrastructure projects may collaborate, as they think they may gain from cooperating (otherwise the client would not select a contractor, and the contractor would not sign the contract to construct the infrastructure project). However, at some point during the project a party may think a different line of behavior is more beneficial. In those situations, one or both parties' representatives may start competing if they think they can benefit from it more than from cooperating. This shift in behavior may stagnate a successful collaboration process.

To prevent this shift from happening, we present in Part II measures (recommendations) to motivate the parties (and their representatives) to collaborate over time while not letting out of sight their individual concerns (*Chapter 4-7 main study*).

Examples are particular terms in contracts (formalizing the parties' arrangements in a contract that gives both the right to enforce promises and imposes incentives on them to act in accordance with the contract) or the perspective of future benefit in cooperating.

9 Conflict: A threat to project success

In Chapter 2 of the main study, where we discuss the reasons for poor project performance, we discuss that conflict between client and contractors can be considered as the most important variable that endangers project success (and thus, in the definition, successful collaboration).

Studies of infrastructure projects show that conflict arises frequently. Therefore, we choose to delve into the causes of conflict in infrastructure projects (*Chapter 2 main study, Section 4*).

We draw the main reasons for conflict from both in-depth case studies and articles that give a review of the frequency and effects of

conflict in a large number of projects worldwide. To make an inventory of the main causes of conflict, we compare the outcomes of empirical studies that examined the causes of conflicts in projects. Then we draw the most often mentioned causes from them, the risks that materialize at these projects, and the adversarial atmosphere that makes it difficult to establish smooth and enduring relationships.

A combination of factors contributes to the adversarial relationship between client and contractor in infrastructure projects. We derive them from empirical studies on infrastructure development and the construction sector in general and from economic theory on power differences (*Chapter 2 main study, Section 3.4*).

From top-tier studies in construction management literature, we identify several kinds of conflicts that arise during the different steps of the construction process in infrastructure construction (planning, tender, realization, and maintenance). We identify conflicts with their sthece in the organization, interaction between people, and technical and legal discussions.

10 Relational contracting models

In Chapter 3 of the main study we discuss relational contracting models that have been introduced to instill and maintain successful collaboration. We review the main literature on partnering and alliancing and summarize the main reasons for the introduction of these relational contracting models, their main characteristics, and the experiences with these models. For the description of the background and characteristics of these models and the way they may be applied in projects, we use government reports and established introductory works (*Chapter 3 main study, Section 2-3*).

From empirical findings we derive that relational contracting models often do not lead to improvement of the performance of infrastructure projects. To find the reasons why these models fail, we review studies into their effectiveness (*Chapter 3 main study, Section 4*). Particularly we look into research of the models partnering and alliancing and the instrument dispute boards. A review of the experiences with these models shows that both partnering and alliancing and dispute boards benefit project performance, but particularly partnering and alliancing also encounter problems of commitment.

Evaluation studies of partnering and alliancing show the conditions under which relational contracting models are likely to be a success, and we highlight barriers (*Chapter 3 main study, Sections 5-6*). This allows us to identify the main causes of success or failure of relational contracting models. The evaluations of (project) partnering, (project) alliancing, and dispute boards in the infrastructure industry indicate the main barriers for successfully improving collaboration in infrastructure projects. By selecting the most often reported factors leading to failure reported in qualitative empirical studies combined with "anecdotal evidence," we are able to draw up the list of the most frequently found barriers for success in infrastructure projects in which partnering and alliancing were used (*Chapter 3 main study, Section 6*).

The list shows that the (negative) variables of project success still emerge. It also indicates that governance structures in infrastructure projects (culture, contracts, regulation of tendering, project management) do not adequately support collaboration between client and contractors. As we will see, these structures sometimes even facilitate competition and adversarial behavior (*Chapters 4, 5, 6, and 7 main study, under the legal perspective*).

We borrow this distinction in governance structures from institutional economics (the study of the role of human-made institutions in shaping economic behavior).[18] We use these concepts to distinguish the different natures of the sets of norms and rules that influence the collaboration process between client and contractor during infrastructure development. In Part III, we show which of these structures may be used to implement successful collaboration between client and contractors during projects and how this can be done.

1.2 Part II Factors influencing the collaboration process and recommendations for successful collaboration

The central question of Part II is the following:

- *What are recommendations for successful collaboration that we may draw from social psychology, economic and legal theories, and findings?*

[18] See e.g. Schmid (2004).

The sub-questions of Chapters 4-7 of the main study are the following:

- *What are the factors that (positively or negatively) influence the negotiation process between client and contractors, and what recommendations for successful negotiation may be drawn from cooperation literature?*
- *What are the factors that (positively or negatively) influence the development of relationships, and what recommendations for a successful relationship may be drawn from cooperation literature?*
- *What are the factors of influence in foreseeing conflict, and what recommendations for foreseeing conflict may be derived from cooperation literature?*
- *What are the factors influencing how parties are dealing with conflict, and what recommendations for successful dealing with conflict may be derived from cooperation literature?*

1 Theoretical and empirical cooperation literature

In Part II we propose recommendations that we derive from cooperation literature. For an in-depth study of how parties may influence the collaboration process, we turn to theoretical and empirical studies of cooperation. In order to find how parties may effectively instill and maintain a successful collaboration process, we survey theories and empirical findings that provide insights into factors that influence collaboration processes.

The goal is to identify the factors that influence collaboration processes between clients and contractors either positively or negatively, and second, we want to derive from theory how to positively influence these variables. Here to we study theories and empirical research to identify factors that advance or diminish collaboration, such as the methods of negotiation, the financial incentives applied in the contract, and legal rules that have an impact on the collaboration process.

2 Analyzing collaboration processes: Negotiations, relationship development, foreseeing conflict, and dealing with conflict

As collaboration is too broad a subject to survey literature adequately, we split it up into fthe sub-collaboration processes. The factors that influence collaboration are studied in the light of negotiations (*Chapter 4 main study*); the process of developing a relationship (*Chapter 5 main study*); foreseeing conflict (*Chapter 6 main study*); and the process of dealing with conflict (*Chapter 7 main study*). The axiom we build upon is that the success of these (sub)collaboration processes taking place during projects together influence the success of the overall collaboration process; if parties are successful in carrying out the sub-processes, the general collaboration process most likely will be successful.

To determine whether these sub-processes adequately reflected the dynamic of the interaction between client and contractors during infrastructure projects, we reviewed literature on the construction process to identify the main collaboration processes in these projects. We found that negotiations, (together) foreseeing conflict, and collaboration to deal with conflicts are processes that take place at various moments during these projects. Next to that, as we discuss in Chapter 5 of the main study, the relationship between clients and contractors is an essential element in the collaboration process in infrastructure projects. The nature of the relationship (adversarial or cooperative) between the client and contractors and their representatives in projects strongly affects the potential to achieve successful collaboration in infrastructure projects. Therefore, next to a chapter on negotiation we added a separate chapter on relationship development.

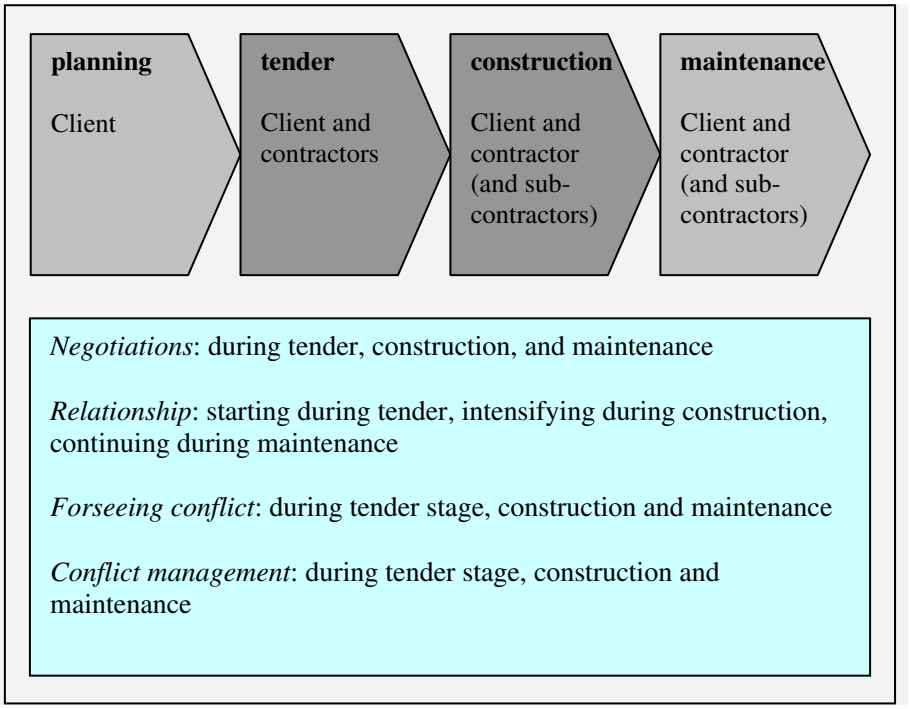

Figure 3: The main collaboration processes between client and contractor that take place during the construction process

3 Negotiation between client and contractors in infrastructure projects

In Chapter 4 of the main study we make recommendations for negotiations between the representatives of clients and contractors. Negotiation processes are instrumental to successful collaboration. First, they are a means to develop relationships between people and entities. They also allow for interactions in order to foresee conflict and conflict management.

Because client and contractor negotiators interact over time, the relationship matters. In infrastructure projects the negotiations are not one-time events but are part of an ongoing negotiation process (a series of negotiations). Negotiation is an essential element of day-to-day interaction between representatives of parties in projects. It may take the form of formal negotiations concerning central aspects of the

project, or informal negotiations between project managers during talks away from the negotiation table.

As the starting point in the analysis, we take the first contact in the beginning of the tender stage, continuing in the construction stage and stretching until the end of the maintenance stage of a construction project. In the tender stage, negotiation involves representatives of the client and bidders. It takes place in the light of information exchange aimed at the selection of a contractor and continues between client and contractor during the contract negotiation and drafting. During the construction stage the client and the selected contractor negotiate through their interactions in the light of the process of preparing and carrying out the actual construction work. During the maintenance stage the parties negotiate the work that needs to be done to preserve the infrastructure work.

4 Defining negotiation

In this report we characterize negotiation as *a process that includes (a) at least two parties who (b) share an important objective, or outcome, but also face differences in positions. They try to reach their objectives and overcome their differences through (c) a process of interactive communication in which both sides (d) make decisions*.

We derive this description of negotiation from definitions in negotiation literature. Most theorists describe negotiation as a process between parties (sometimes represented by their agents) during which decisions are made. Pruitt describes it as "a process by which a joint decision is made by two or more parties."[19] Others add to that the element of a divergence in positions between those parties. For instance, Ury describes negotiation as "a process of combining conflicting positions into a common position under a decision rule of unanimity, a phenomenon in which the outcome is determined by the process."[20] Again, others stress the dilemma negotiators face during the process of negotiation to choose either a cooperative or competitive approach. Putman illustrates the dilemma negotiators face during negotiation by defining it as "an ongoing process rooted in tensions between cooperation and competition."[21] Finally, theorists

[19] See Pruitt (1981: 1).
[20] See Kissinger (1969: 212); Van Lange and De Dreu (2003: 342).
[21] See Putman (2006: 386).

including Rubin and Korobkin particularly stress the elements of communication and inter-dependence between the parties. Rubin refers to negotiation as "a process of communication used to get something we want when another person has control over whether or how we can get it."[22] Korobkin defines it similarly as "an interactive communication process by which two or more parties who lack identical interests attempt to find a way to coordinate their behavior or allocate scarce restheces in a way that will make them better off than they could be if they were to act alone."[23]

5 Negotiation: Interaction, communication, and decision making

The definition of negotiation illustrates that the basis under it is interaction, communication, and decision making between and by individuals. These processes are the basis of negotiation and therefore are also key elements that determine its success.

We define interaction as the action that occurs when two persons have an effect upon one another. For example, through their interactions negotiators determine the cthese of bargaining and can alter it from a cooperative endeavor to a highly competitive one (or vice versa).[24]

Interaction cannot take place without communication. Through their communications negotiators signal intentions, exchange information, respond to the other party's moves, coordinate outcomes, and manage the dynamic tension between cooperation and competition.[25] Communication is a dynamic process that enables the creation of shared objectives and builds mutual trust. If successful, interaction leads to observable effects between two parties; they build trust, create a quality product, or build a relationship that supports the optimization of their goals. To organize this effectively, parties – professionals such as managers, but also their advisors, such as lawyers – have to learn to understand and master this interaction process.[26]

---

[22] See Rubin (2006: 1).
[23] See Korobkin (2002: 1).
[24] See Putman (2006).
[25] See Putnam (2006: 385-394).
[26] See e.g. Fleerackers (2002) on the important role for lawyers in this process; See e.g. also Nelken (2003: 301-354).

Decision making is defined as the "cognitive process of selecting a cthese of action from among multiple alternatives."[27] As variable in negotiation, we may say that the better the decisions of the individual negotiators, the more successful the negotiation process taking place between the entities.

6 Both cooperation and competition in successful negotiations

In their negotiation process, the approach of the negotiators representing the parties' interests may vary on a "scale of cooperativeness." In negotiation literature originally a distinction was made between competitive and cooperative negotiation. The difference between the two is that cooperative negotiation involves parties in an effort to jointly meet each other's needs and satisfy their interests, whereas, in competitive negotiation, parties focus on their respective self-interest and division of assets.[28] In that view cooperative negotiation is regarded as the form of negotiation that produces the best results for the parties in aggregate (the highest mutually beneficial results). It is regarded as the approach that provides the greatest good to the greatest number of people.[29]

Most of the current literature on negotiation distinguishes between cooperative and competitive stages within negotiations. Integrative negotiation consists of a value-creating stage requiring cooperative negotiation and the value-distributing stage involving competitive negotiation. (*See Chapter 4, Section 2.1*). In other words, competition and cooperation are not mutually exclusive in negotiation. At some point mutual benefit needs to be divided; baking the biggest possible pie does not say anything about how it is divided.[30]

We call a negotiation process "successful" when the parties manage to have a negotiation process in which they coordinate their interaction and manage to meet most of their common and individual interests and in which they are committed to meeting or surpassing project goals.

---

[27] See Simon (1955); Baron (2008).
[28] Cf. Lewicki (2007: 58); Nelken (2003: 59-114).
[29] See Rubin (2006) for reasons why cooperative negotiation is preferred over distributive bargaining. See also Follett (1940).
[30] See Rubin (2006).

7 Relationship development in infrastructure projects

In Chapter 5 of the main study we provide recommendations for developing relationships between clients and contractors as entitities. The realization of an infrastructure project is the basis for the parties' relationship. To realize a project, the parties need to join efforts for months and often several years, which means they enter into a long-term relationship.

The process of developing a relationship mainly takes place through negotiations; through negotiations between their representatives, parties create and maintain their relationship.

The process of developing a relationship that allows the parties to achieve their goals starts during the tender stage. First, the client develops a relationship with a number of contractors. After the selection of a contractor, the relationships with the other candidates ends and the relationship with the selected contractor intensifies. The client and selected contractor enter into a contract and may create a legal partnership to facilitate their cooperative actions. The relationship continues to develop during their collaboration process.

8 Developing a successful relationship

The parties' relationship is a key variable for successful collaboration. In this report we perceive the parties relationship as their vehicle for cooperation. We call a relationship that facilitates successful collaboration a "successful" or "cooperative relationship."

In Part I we discuss that the adversarial atmosphere in the construction industry is detrimental for the relationships between client and contractors. We identify that it is one of the main reasons why conflicts arise and the collaboration between them does not lead to project success. Hence, a good relationship between parties facilitates, and a bad one may threaten a successful collaboration process. A good relationship facilitates interaction and communication more easily; it makes transactions more efficient and therefore less costly, and it creates a bond between the parties, which facilitates the growth of trust between the cooperating partners and their representatives. Moreover, a good relationship creates a mutual dependency that may further strengthen the bond between the parties.

We also argued in Part I that the relationship is dynamic and not static; it develops. As a relationship that is initially beneficial may become less attractive to one or both parties, both the relationship (and the rules governing it) should be subject of constant review.

9 Foreseeing conflict in infrastructure projects

In Chapter 6 of the main study we make recommendations for foreseeing conflict. Empirical studies confirm that conflict is almost certain to arise in complex collaboration processes such as those taking place in infrastructure projects.[31] They may occur at any moment during the collaboration process between client and contractors, in any stage of a project. It may be during the bid procedure, when the work is being realized, that a project organization is dismantled, or during the maintenance. It may frustrate the collaboration process and pose a threat to a cooperative relationship in any stage of its development. This makes conflict a factor that needs constant attention.

In Part I we see that conflicts between client and contractors often originate from problems such as misunderstandings about information exchanged during the tender procedure, unanticipated events with serious financial consequences, and clashes in personality between project members or organizational deficits (*Chapter 2 main study, Sector 4*). As a result, disputes and legal claims are almost routine industry practice.[32]

Conflicts may derail the negotiation process and damage the relationship when parties get angry, become entrenched in their positions, and accuse and blame each other, all of which may result in frustration and mistrust. If a disagreement persists and is not addressed properly, it may derail a successful collaboration process. It can create an impasse, disrupt the parties' cooperative relationship, and eventually may even jeopardize the project performance.

10 Defining conflict

[31] See e.g. Fenn and Gameson (1992); AAA (1994); Main categories of problems Kumaraswarmy (1996); Conlin et al. (1996);
[32] See Yates (1998: 6).

In this report we call a problem (or issue) that has been discussed between parties but not resolved a "conflict" or "dispute."[33] Problems become disputes when a) one of the parties identifies a problem, b) he decides to address it with the other party, and c) his demands are only partly honored or denied: a conflict has arisen between the two.[34]

The key elements we use to describe a conflict are the following. There is a conflict *situation*, in which people or entities (the *actors)*, disagree about something (the *subject* of the conflict). This conflict arises under particular *circumstances* and includes a *state of tension* that exists between the parties.[35]

A broad definition of conflicts (or disputes, disagreements, or arguments) that we draw from (psychological) conflict literature is "a clash or state of opposition (the conflict situation) between persons, ideas, or interests (the actors)."[36] Such a disagreement or argument is about something important: a need, concern, or fear (the subject). Conflicts arise in particular circumstances. They may occur in situations where people who are dependent on each other compete over limited restheces or have goals that appear incompatible (the conditions). Furthermore, at least one of the actors feels irritated or obstructed by the situation (the tension).[37]

11 Foreseeing conflict: A basis for dealing with conflict

To be able to manage the negative effects of conflict, the parties should foresee conflict. Therefore, they first need to acknowledge the existence or likelihood of conflict during the construction process. Second, they need to identify conflicts (by defining and categorizing conflict). Third, they need to have some understanding of conflict dynamics (such as escalation and people's conflict behavior).

Knowledge of past projects can help parties to make an inventory of the types of conflicts that usually arise. Their knowledge of factors that cause conflict allows the contract parties in infrastructure projects

[33] We use these terms interchangeably. We are aware that some authors make a difference between the two but for the purpose of the study that distinction is less relevant.
[34] See Felstiner, Abel and Sarat (1981).
[35] Cf. Van de Vliert (1997) who mentions as key elements in conflict: parties are dependent on each other, have a psychological experience, there is cognitive or affective tension, the experience is distinguished from conflict behavior, it can be one sided, it is a process.
[36] See Pruitt and Rubin (1986); Cf. Pondy (1967); Deutsch (1980); Putman and Poole (1987); Van de Vliert (1997); Pruitt (1998); Prein (2007).
[37] See Van de Vliert (1997).

to define types of conflicts they think may threaten the project. The parties may, for instance, spot the potential for conflict about the quality of the work caused by employing a highly innovative construction method neither party has used before. Having such an overview allows them to identify potential conflicts but also determine how to react in a way that best protects a smooth continuation of their collaboration process.

12 Identifying and categorizing conflict

We suggest the approach for identifying and categorizing conflicts based on a system used by scholars who study (and develop) conflict systems in organizations.[38] The inventory and categorization of types of conflict are the first and second steps in their approach.[39] We draw from that and distinguish the following steps parties may take in foreseeing and dealing with conflict.

1) An inventory of the (potential) conflicts. Make sure that parties have a clear and shared view on causes of conflict, the circumstances that increase the chance of their occurrence, their characteristics, and the possible harm—or good—conflicts may do. A shared vision of conflicts allows parties to discuss the conflicts they think may arise during a project.
2) Definition and categorization of conflict. Once the parties have made an inventory, they may define and distinguish between kinds of conflicts and conflict behavior. This allows them to predict and recognize conflicts so they may identify conflicts as soon as they arise.
3) Dealing with conflict. The parties take measures to decrease the chance of damage to the collaboration process and reduce the threat of conflict to the project goals (completing the project on time, at the lowest cost, and at the highest possible quality).

The first two steps we cover in Chapter 6 (foreseeing conflict); the third stage we discuss in Chapter 7 (dealing with conflict).

[38] See for the steps in designing a dispute system, Ury, Brett and Goldberg, 1993; Costatino and Merchant (1996) and Shariff (2003).
[39] See e.g. Ury, Brett and Goldberg (1993: 20-40); Costatino and Merchant (1996).

13 Dealing with conflict and infrastructure projects

In Chapter 7 of the main study we make recommendations for dealing with conflict. We saw that conflicts arise easily in infrastructure projects due to the adversarial atmosphere of the construction industry. The way in which conflicts are resolved tends to be adversarial as well. A problem we discussed in Part I is that, first, conflicts in infrastructure projects often do not escalate to a higher level so they may drag on for a long time, and, second, when they are actually dealt with, arbitration is traditionally the chosen approach to resolve them. It is also fashionable to settle conflicts only after the contract has been completed to limit the costs they may incur. As a consequence of this practice, conflict resolution often takes place long after the events to which they relate (*Chapter 2, Section 4*).

Even though this delayed 'dealing with conflict' is done in an attempt to keep further conflicts away from the site, it may complicate their resolution. The first disadvantage of this approach is that once the conflict is addressed, memories will have faded, and the people involved have often been transferred to other projects. Records may have become lost. Another practical problem with this approach is that the contractor will already have been kept waiting for his money, and he in turn will have kept his sub-contractors waiting. Failure to settle the dispute will also affect attitudes towards the project and to those believed to be responsible for the events leading up to the dispute.[40]

14 Defining conflict management: Prevention, resolution, and other reactions to conflict

In the analysis of literature to find factors that tell us how to effectively deal with conflicts, we depart from the axiom that "conflict management" is a label for the entire process that people go through when dealing with disagreements. It includes conflict prevention, conflict resolution, and any other reaction to conflict. This process of dealing with conflicts may be short or long and may involve a variety of parties, instruments, levels, and procedural steps.

The first category of conflict management we focus on is the techniques available to the parties to *prevent* conflicts. Second, we

[40] Marsh (2001: 22-23).

focus on factors that influence the process of *conflict resolution*: the conflict systems consisting of formal procedures that may be used, the techniques parties may apply themselves, and the involvement of third parties. Third, we identify factors that influence people's *reaction to conflict*, the factors that influence people's choices in dealing with conflict, such as their conflict resolution styles, their preferences in conflict resolution, and their level of concern for the other parties' interests.

15 Successful conflict management

We perceive conflict management as a negotiation process that has as its objective averting the breakdown of an ongoing negotiation process.[41] We consider the process of conflict management "successful" if the parties manage to deal with conflict in a way that optimally contributes to a successful collaboration process (leading to project success).

The assumption is that the better a conflict management process scores on the criteria transaction costs, satisfaction, effectiveness, and impact on the relationship, the more it contributes to a successful collaboration process. This is "successfully dealing with conflict."

16 Theories and empirical findings from social psychology, (micro) economics, and legal literature

In Part II we include in the survey theories and empirics from social psychology, economics, and legal studies. We choose three bodies of research that each approach the subject differently. However, separately, they provide an inadequate lens to view collaboration.

We selected these disciplines from a large number of disciplines in which cooperation is studied, as we expected they could provide us with information that helps in understanding, predicting, and influencing people's cooperation behavior. Within these three disciplines we cover theories from which we derive factors that influence collaboration processes.

[41] See also Lewicki (1999: 112).

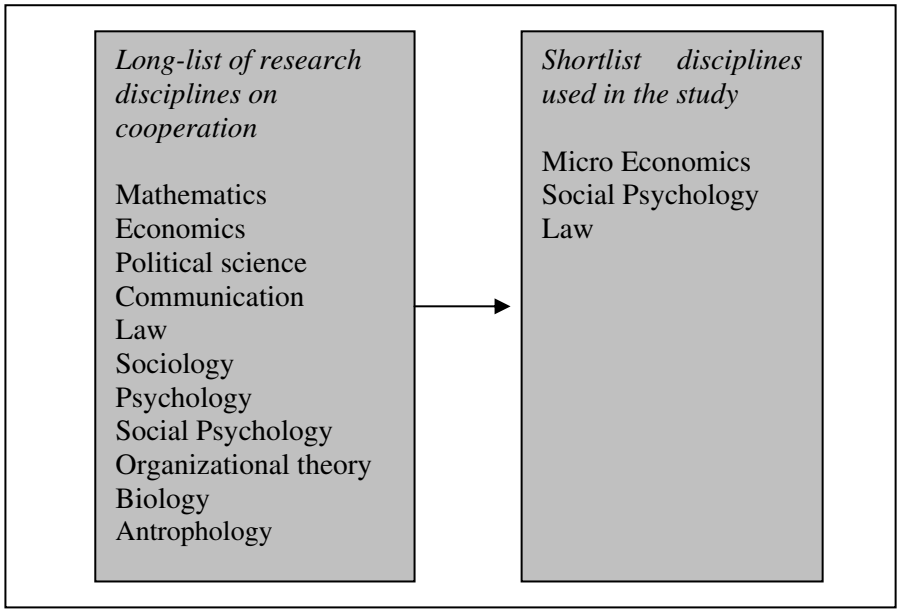

Figure 4: Long list and short list of bodies of research on cooperation

We selected social psychology, as we expected information on the nature and causes of human social behavior in interaction with others. Theories within this perspective provide information on human variables that may positively or negatively influence a collaboration process (such as theory on negotiation methods, motivation, and cognition). They help in understanding what drives people in cooperation situations and in the different situations of negotiation, conflict, conflict resolution, and relationship building and maintaining.[42] Social psychological studies also give valuable information about the influence of the setting of cooperation, such as the organization in which it takes place. To identify the main factors influencing negotiations, we reviewed theory and empirical findings on (integrative and distributive) negotiation, theory on perceptions and beliefs, motivational theory, and social exchange theory.

For the situation of collaboration between client and contractors in infrastructure projects, it provides us with insight in the behavior of the actual people active in tender, construction, and maintenance stages of infrastructure projects. They are the persons actually

[42] See Deutsch and Coleman (2000: 23-24).

negotiating the relationship for their principals, and can foresee, and deal with conflicts.

We selected microeconomics, as it gives insight into the choices and decisions people make in situations of limited restheces to satisfy their needs and wants. The economic perspective provides information about incentives that steer behavior in a certain direction. It also provides prescriptive models of what behavior is optimal (rational choice, Pareto optimality). The economic theories we survey include rational choice theory, decision-making theory, transaction costs theory, contract theory (complete, incomplete, and relational contract), game theory, bargain theory, and behavioral theory. Economic theory is relevant for infrastructure projects, as it gives insight into the behavior of the people involved in projects and the entities.

Finally, we choose legal literature because we expect legal governance mechanisms to influence cooperation. Legal scholars discuss the legal boundaries the law sets for parties' behavior as well as the criteria the law provides that may guide the parties in their interaction with others. For instance, legal literature describes the limitations of what parties may agree amongst each other and what principles they need to respect (e.g., contract law, legal principles), what particular rules have to be taken into account (e.g., tendering rules) and what is the framework for (judicial) conflict resolution (e.g., procedural law). Legal scholars in the field of sociology and law study how legal professionals—often involved in contract negotiations and conflict resolution—tend to think and act. The legal theories we draw from include contract theory on the principle of good faith (and duties to inform derived from it), contract formation, (pre-) contractual liability, and law and sociology. For infrastructure projects the legal factors we derive from legal literature mainly influence the behavior of parties as entities.

In the survey of these disciplines we only focused on landmark studies: those studies with essential contributions to the field. The literature we draw from includes established theories on cooperation that are mostly undisputed and supported by substantial empirical evidence. To identify the most influential (or "standing") literature, we used overview articles, scientific encyclopedias, textbooks, and yearbooks. To some extent, more recent and less generally accepted insights or empirical evidence have been used. This we only did in case it affirmed or filled voids in standing theories, or where it

indicated a change in thinking. The recommendations given in this part are based upon this standing literature.

17 Factors and recommendations

In Chapters 4-7 (main study) we identify factors and make recommendations. First, we draw from theories factors that influence cooperation. The parties' actions during negotiations; relationship development; interaction in order to anticipate conflict; and dealing with conflict may be influenced by a large variety of factors. For instance, the negotiation process is influenced by their motives to enter into a relationship, the financial incentives they experience (for instance, the ones arising from the contract), and legal rules of contract law applicable to their arrangements.

In addition to factors that foster a successful collaboration process, we try to identify factors that negatively influence cooperation or foster competition.

Second, in each of the chapters in Part II (main study) we present recommendations for the client and contractors. These recommendations have a normative character. The recommendations are addressed to the parties and describe what parties may do to positively influence the factors and thus support their collaboration process.

18 Examples of applications of recommendations

Finally, to illustrate how recommendations may be used in practice, we apply them to a hypothetical infrastructure project situation (*Chapters 4-7 main study*).

The starting point for the example is the following:

Client A wants to realize a large infrastructure project. The infrastructure work consists of the realization of a tunnel with a high level of complexity in terms of technical design and the construction area. Many risks are involved in terms of nuisance to the surrounding area and risks of construction due to unstable ground conditions. Moreover, the project has many stakeholders (including environmental groups, local residents, and government agencies),

which further increases the chance of changes in scope. The client expects the project to ask much of the project participants in terms of flexibility and the creativity of the parties to deal with unforeseen events.

To be able to adapt rapidly to changes and to prevent conflict, the client wants to use a cooperative approach in which risks are managed mutually. The top management supports this cooperative approach. The client's aim is to implement the principles of partnering and alliancing on a project level. However, he wants to make sure there is a firm commitment throughout the construction process and that there are measures to implement and maintain the relational contracting principles. The project organization, the tender procedure, and the contract should reflect and support a cooperative atmosphere.

In the sections "recommendations applied" we give suggestions for how client may initiate the collaboration process with contractors and how both client and contractors may interact in the different collaboration sub-processes.

1.3 Part III Towards a systematic approach: checklists for successful collaboration in infrastructure projects

The central question in Part III is the following:

- *How may the recommendations be implemented in infrastructure projects?*

The sub-questions of Chapter 8 of the main study are the following:
- *How can the recommendations be implemented in project success mechanisms?*
- *In which situations within the tender, realization, and maintenance stages may the different recommendations be implemented?*
- *What are the governance structures in which recommendations may be implemented?*

1 Implementing recommendations in infrastructure projects

We conclude the main study by showing how and where the recommendations may be implemented in infrastructure projects. First, in Chapter 8, we categorize the recommendations based on their

possible contribution to project success mechanisms we detailed in Chapter 2 (*Chapter 8, Section 2*). We categorize the recommendations by the mechanisms they may be implemented under. We develop short descriptions by which we determine where to place each recommendation.

2 Stages of the construction process

We explore the stages of the process (planning, tender, realization, and maintenance) in which the recommendations can be applied (*Chapter 8, Section 3*).

We distinguish activities during the tender and construction stages in which the parties may particularly benefit from the recommendations that may be drawn from literature on the construction process of infrastructure development. We organize these activities by stage of the construction process and by the order in which they arise during these stages. Within the tender stage we distinguish: the design of the tender process; call for tender; information exchange meetings; bid selection; contract negotiations; and drafting of the legal documents. Within the construction stage we distinguish: preparing the site and the project organization; constructing the work and dealing with unforeseen events; renegotiation of the contract; project delivery and end dismantling of project organization. Within the maintenance stage we distinguish: regular maintenance and reparations. During all three stages parties may be: discussing (potential) conflict and conflict management (*Chapter 8, Section 3.2*).

The choices the parties make during these activities influences their interaction and may substantially influence the success of the collaboration process. These activities are occasions on which the collaboration process may be put on a cooperative track, may be strengthened, or may derail.

We place the recommendations in the context of an infrastructure project under each of these situations. In deciding under which situation to place a recommendation, we categorized the recommendations under the first possible situation in which they may possibly be applied. We depart from the assumption that the sooner the parties take action that contribute to a successful collaboration process, the higher their impact.

3 Governance structures: Tender regulations, contracts, and codes of conduct

We suggest three legal governance structures we think may be suitable media for implementing the recommendations at a project level (*Chapter 8, Section 4*).

In determining on the institutions that seem most appropriate, we chose those that (together) 1) cover the entire construction process (from the beginning of the tender stage until the maintenance stage) and 2) for which parties have (a certain extent of) freedom to decide on their design (which excludes laws and industry level regulations). Based on these criteria, we selected tender regulations (as drawn up by the client within the boundaries of procurement law), the contract (within the boundaries of contract law), and a code of conduct or project charter. We chose these structures, as their design is in either or both parties' control, and - within the boundaries set by the law and regulations - the parties may include what they want.

4 Checklists: Project success mechanisms and stages

In Chapter 9 of the main study we present two "academic checklists" in which the recommendations are organized based on the divisions in project success mechanisms (*Chapter 9, Section 2*) and by stage and activity that particularly affect the collaboration process (*Chapter 9, Section 3*). These checklists may be regarded as a first step towards a practical application that allows decision makers who want to design (and evaluate) governance structures that optimally contribute to project succes (finishing projects within or ahead of time, within budget, and for the agreed upon quality). It may assist them in drafting governance structures for the collaboration process between client and contractors in complex projects. The next step is to take the findings in the study and concretize and prioritize the recommendations further and turn them into practical tools.

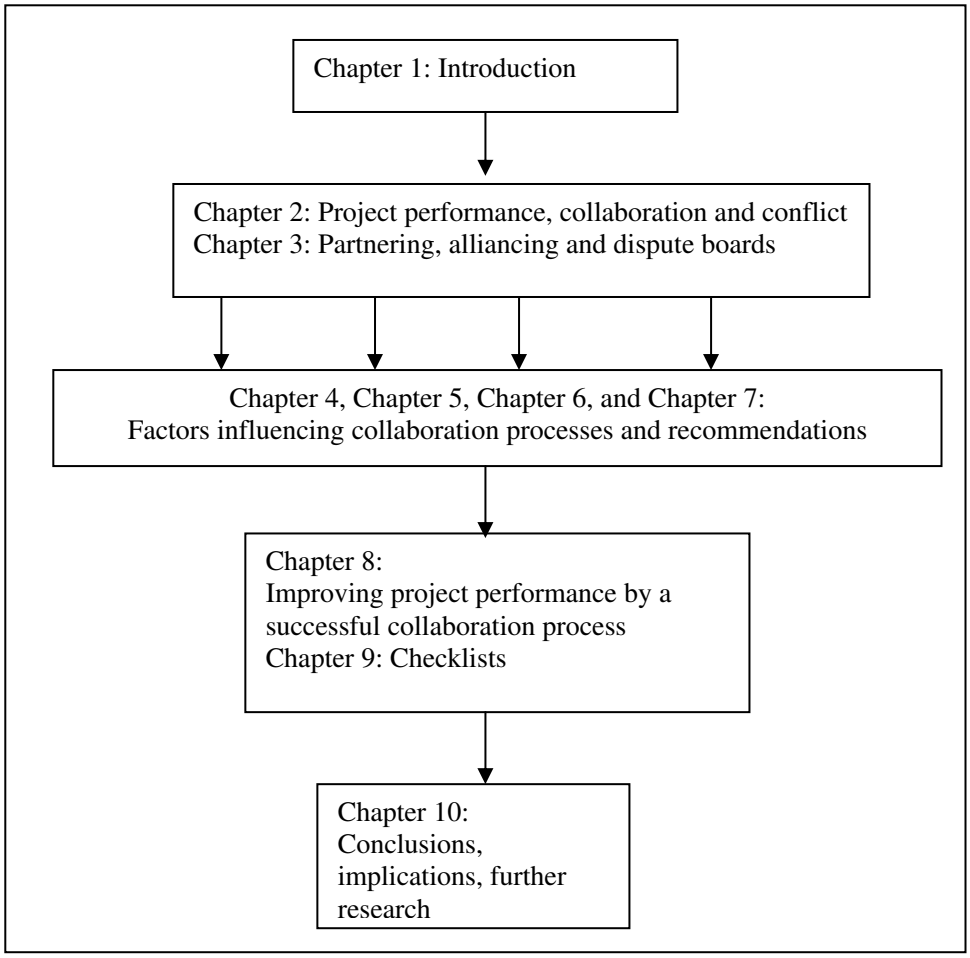

Figure 5: Structure of the main study

CHAPTER 2

II COLLABORATION, GOVERNANCE STRUCTURES AND PROJECT PERFORMANCE IN INFRASTRUCTURE PROJECTS TODAY

1 Project performance, collaboration and conflict in infrastructure projects

In chapter 2 of the main study we focus on the poor project performance of infrastructure projects. First, we review construction literature to gain insight into the characteristics of infrastructure projects. We found that infrastructure development is a sector of the construction industry that is notorious for its delay, cost overruns, and problems with quality. In the first part we explained that project performance is generally "measured" or illustrated by the use of so called "indicators of project performance." We distinguished between the criteria of construction cost, time, and quality of the end-product, and the less frequently used criteria of client satisfaction with the process and the amount of conflict and claims. We found that empirical studies show that worldwide most of these projects are delayed. They also encounter problems of controlling construction costs.

In project management literature, factors have been identified that influence project performance positively or negatively. In the study, we consider these factors as the independent variables of (the dependent variable) project success. The variables we derive from success factors are commitment,[1] competence, interaction and communication, monitoring, and feed-back. Variables we have derived from factors leading to failure are conflict, ignorance of project management, bureaucracy, aggressive competition at the tender stage, and short bid preparation time.

Realizing project success requires an investment of the parties in project success mechanisms that (positively) influence these variables. We distinguished between actions the parties may take to contribute to a more positive value for each of the variables of project success mechanisms. We distinguished between commitment mechanisms,

[1] In terms of psychological identification of project partners as entities and as people with the project goals, and willingness to invest in those goals. See e.g. Mohrman and Spekman (1994).

selection mechanisms, training mechanisms, interaction and communication mechanisms, decision making mechanisms, conflict identification and management mechanisms, monitoring and feedback mechanisms, and mechanisms for setting a cooperative atmosphere.

Furthermore, we argue that the collaboration process between client and contractors in these projects is a key variable, as it is instrumental to a range of variables that influence project success. We illustrated that adequate collaboration between clients and contractors is essential to deal with the complexity and the challenges of infrastructure projects.

We show that the relationship between client and contractor is often adversarial. We also argued that due to the adversarial atmosphere and the complexity of infrastructure construction, the construction process is sensitive to events that may become obstacles for achieving the project goals. They often lead to conflict.

We elaborate on the negative impact of conflict, addressing the relational and financial costs of conflict and the costs of conflict resolution. Disputes often lead to claims for delay. They result in extended overhead and inefficiencies, and the collaboration process may be seriously threatened.

The main risks at the basis of disputes are various events happening during the different stages of the construction process. Among them are changes in design, incomplete information about the scope, or quality, interpretation differences, and damage to projects. If the problems are not addressed properly and in a timely manner, a conflict is generally the result. Conditions and deficits further facilitating the growth of conflicts are related to the organizational, interactional, technical, and legal atmosphere of projects.

2 Partnering, alliancing and Dispute Boards in infrastructure projects

In chapter 3 of the main study, we analyze the solutions that have been offered to stimulate successful collaboration in infrastructure projects. We discuss the characteristics of partnering, alliancing and dispute boards, and explore to what extent these relational contracting models actually contribute to successful collaboration and project success. We first discuss the background to the introduction of these relational

contracting models for infrastructure projects. We discussed the reports that gave these models a kick start and portrayed their rapid development in theory and practice. Based on the review of empirical studies into partnering, we conclude that dispute boards are rather successful in dealing with conflict. Most users seem satisfied with this instrument, and it is embraced on projects worldwide in any form. However, there is no clear link between applying relational contracting models in infrastructure projects and improved project performance. A review of project evaluations results in a mixed image of their contribution to successful collaboration. Even though they have shown to be advantageous in terms of lower levels of conflict and a more cooperative atmosphere, only a number of projects in which these models were applied were clearly successful in terms of meeting or beating project goals.

The inventory of the preconditions under which partnering and alliancing are likely to be successful showed that opting for partnering demands an investment in what we have called Project Success Mechanisms. It includes setting adequate tender criteria, actively creating a relationship between client and contractor during the construction stage, and investing in tools to support commitment throughout the project.

In the last sections of the study, we discuss the problems that arise in applying partnering and alliancing in practice. They are related to conflict management, lack of adequate skills, maintaining a cooperative atmosphere throughout the project, and costs of implementing these models. In other words, the project success variables emerge again. Next to these variables, the governance mechanisms, such as culture, contracts, regulation of tendering, and project management fail to provide adequate support for collaboration. Particularly, organizational problems, legal uncertainty, and procurement regulations are found to undermine their commitment to honor the partnering principles. First, these are obstacles that stand in the way of adequate implementation of the models (management costs, procurement rules). Second, groups of obstacles have to do with legal uncertainty. Uncertainty exists in terms of what the concept entails, what duties and rights they impose on parties, and on how they may be enforced.

Third, the parties face the challenge of having to impose behaviors that are not always consistent with market practice. Procurement

practice and rules of competitive tendering trigger competitive behavior, these relational contracting models lack the legal discipline and structure of earlier standard forms, and tender rules may nog be sufficiently adopted to partnering. The existing governance mechanisms seem to enhance conflict and adversarialism instead of contributing to collaboration. We argued that this shortage of support is a major threat to the success of partnering, and along with that, to project success. Finally, we concluded that whether these relational contracting models will be attractive will also depend on the nature of the project and the willingness of parties to make these investments.

The main conclusion in chapter 3 is that the implementation of successful collaboration requires investments in project success mechanisms and in governance mechanisms that actually support the collaboration process. Using relational contracting models, such as partnering and alliancing, or instruments, such as dispute boards, *may* enctheage successful collaboration but are not a *guarantee* for successful collaboration (resulting in meeting or beating project goals). Second, we learned from the evaluations of partnering and alliancing that to successfully implement and maintain successful collaboration, the collaboration process needs to be supported by mechanisms that sufficiently and continuously enctheage parties to behave cooperatively. Such mechanisms may better provide a counterbalance against the adversarial atmosphere and power differences in the construction industry that easily lead parties away from collaboration, particularly when the project gets in heavy weather.

CHAPTER 3

III SUCCESSFUL COLLABORATION: KEY FACTORS AND RECOMMENDATIONS

In this chapter of the report (that corresponds with Part II, chapters 4-7 of the main study) we identify the ingredients for a more systematic approach to collaboration. We distill the factors that influence collaboration processes between client and contractors from literature, and develop recommendations for parties on how to achieve successful collaboration.

1 Negotiations in infrastructure projects

In chapter 4 of the study we review the first and foundational collaboration sub-process: the negotiation process between client and contractors. We review negotiation literature to identify factors that influence the cthese of a negotiation process. We propose recommendations for "a successful negotiation process."

The factors influencing collaboration in the light of negotiation as we defined it are the following. From theories and empirical findings we placed under the social psychology perspective factors are *the method of negotiation, peoples' motivations, their perceptions, their negotiation styles, the tendency to match and reciprocate, and the choice of communication channels.*

From economic theories and empirics we draw the following factors: *the extent of rationality in decision making; the extent to which parties take steps in decision making leading to value optimization; their anticipation of the limitations of the human mind; actions to correct biases that lead to sub-optimal (biased) decisions; transaction costs; information that is not available at the time a decision is made and information asymmetry between parties; the use of measures to deal with these irrationalities (such as cool-off periods); social norms and reputations; the negotiation strategy used; and trust levels between parties.*

From legal studies we draw the following factors: *barriers of the law for certain behavior (as it is perceived as damaging to the interests of society or the negotiation partner); the guidance to parties by principles, laws and regulations; the amount of freedom laws and*

regulations leave to parties to agree on their own rules; the competitive nature of the legal system; and the influence of lawyers.

We found that the choice of negotiation method influences the cthese of negotiations. Embracing an integrative negotiation method throughout the project enctheages collaborative behavior and helps parties to focus on solutions in which both "do well" (win-win solutions).

Knowledge of the drives or motivations that influence negotiation behavior is a second factor we found. Peoples' drives indicate their tendency either to cooperate or to compete. Therefore client and contractor may try to obtain information about the drives of the other persons involved in tender proceedings. That information may be used during the project as a criterion in the selection of persons for a project organization. Through measures such as creating a sequence of interaction, a bond, or the introduction of financial incentives, the client may stimulate cooperative negotiations.

Third, the negotiation process that takes place during a project consists of a continuing sequence of decisions made by the parties individually or mutually.

Ftheth, people's perceptions (unconsciously) influence their decision-making process. Anticipating the limitations of the human mind and correcting biases may prevent parties from making sub-optimal (biased) decisions. The parties may integrate mechanisms that prevail, making decisions that are distorted by biases.

Furthermore, insights into preferred negotiation styles may help prepare client and contractor for their interactions. By agreeing to use the style of problem solving as initial one, the parties may facilitate a successful negotiation process.

Another factor is people's tendency to match and reciprocate the actions of others. People may influence and change the motivations and behavioral patterns over time. This may be faciliated by stimulating cooperative first moves in negotiation, or by enabling the weaker party to change from a competitive to a cooperative tone.

Sixth, the channels of communication people use are also a variable that (indirectly) influences the negotiation processes. The choice of inadequate channels may lead to miscommunications and conflict and derail the collaboration process. Face-to-face contact tends to be the ideal means of interaction for building the fundamentals of a successful negotiation process.

In economic literature on decision making, first, self-interest is considered as the main driver behind people's actions. Rational choice and decision-making theory predicts that self-interested value-optimizing individuals negotiate towards the most optimal outcomes. From these theories parties may derive the steps leading to rational decisions focused on the goals allowing the parties to systematically decide based upon information and weighing all possible options. In any negotiation situation the most likely settlement that rational actors would choose is one that best satisfies both parties' aspirations (those with the highest joint benefit). More recent decision-making theory suggests that other drives such as concern for others may create the tendency to take the interests of others into account and strive for results that also meet the other party's interests.

Second, Behavioral Decision Theory suggests that people tend to deviate from this rational decision-making ideal, leading to irrational behavior and sub-optimal outcomes. The deviation from rational behavior results from shifting preferences, transaction costs, and information that is not available at the time a decision is made. Measures to deal with these irrationalities give decision makers the opportunity to be rational and include cool-off periods and raising stakes.

We also found that in the choice of actions and decisions during negotiations, people are also the subject of extrinsic incentives such as norms and rules. People care about obeying formal or informal rules, as they may impact their self-interests. The ftheth factor of influence on the negotiation process is that people care about living up to socially agreed-upon rules (social norms) and, fifth, care about developing and keeping solid reputations. Embracing these mechanisms may lead toward cooperative negotiation behavior throughout a project, as they tend to be important factors in obtaining or being denied future business.

A sixth variable is the negotiation strategy people use. It influences the tone in negotiations and the cthese of the negotiation process. Setting off by using a strategy serving their self-interest in the short term may threaten a successful collaboration process in the long term. The strategy regarded as facilitating collaborative behavior over time

is tit-for-tat (in which a party initially cooperates, responds based on reciprocation, and after that switches back to/continues collaborating.[1]

A seventh factor is trust. Trust is a factor that may replace norms in leading towards successful negotiation. It is a mechanism that facilitates cooperation through being trustworthy (reliable, predictable, and consistent). Trust can be built up gradually and may replace extensive use of contracts or rules.

The law influences the negotiation process by providing a legal structure for negotiations. First, the law aims to prevent tactics and actions perceived as damaging to the interest of society or the negotiation partner and, thus, protects the parties from harmful behavior. Furthermore, legal rules and principles may be a guide for parties in their negotiations. Third, the legal system provides for a competitive win-lose approach. This approach may prevent negative consequences of harmful negotiation behavior, but it may also threaten the ongoing process. The approach of lawyers advicing their principals also influences the negotiation process. The choice of type of lawyers approach (competitive or more cooperative) is a ftheth factor. Finally, the rather wide bandwidth the law provides is a factor that influences negotiations. The parties may agree on their own negotiation rules that facilitate cooperative negotiation within that margin.

2 Relationship between client and contractors in infrastructure projects

In this section (corresponding with chapter 5 of the main study) we focus on the collaboration process through which parties develop a relationship. We start by arguing that a condition for sustaining a successful collaboration process across time is a relationship that allows for it. The relationship that allows client and contractors to collaborate optimally during a project, we named a “successful” or “cooperative relationship.” We regard the process of creating and sustaining a cooperative relationship as a special type of negotiation process between the parties.

We discuss the factors that we distinguished in Chapter 4 of the study, in the light of the relationship development between client and

[1] See Axelrod (1984).

contractors. We highlight in the social psychological perspective an additional factor influencing relationship development to be *power distribution between the parties.* Additional factors within the economic perspective include *contracts (in their roles as risk enforcement of promises, risk allocation, procedures for dispute resolution, blueprints for exchange, and the extent to which they are complete, incomplete, or relational).* Factors within the legal perspective we highlight include *contract law (providing safeguards against violent and opportunistic (pre-)contractual behavior); procurement law; principles of good faith; duties to disclose and liability rules; legal regimes and contract interpretation; and dispute resolution mechanisms.*

From motivational theory we derive that for successful relationships, parties need to be motivated to work together over time. From social exchange theory, we derive that people's main motivation for collaboration and cooperative behavior is self-interest. It posits that all human relationships are formed as a result of a subjective cost-benefit analysis and based on a comparison of alternatives. Therefore, a relationship must be mutually beneficial. To motivate parties to start a relationship, the preconditions are an overlap in desires and a chance of future encounters if valued by both. Adequate measures need to be taken to organize a fair division of benefits that will serve both parties' self-interest. Once in a relationship, they expect to continue for a while, creating the expectation of benefit of cooperative moves, and fear of punishment for opportunistic behavior may be an important motive for continuing to behave cooperatively.

People's perception of the relationship also influences its level of success. They tend to have a certain image in mind of the ideal relationship. Creating a relationship governed by rules of respect, fairness, and reciprocity comes nearest to that image and is likely to create a high level of satisfaction and contribute to the development of a successful relationship.

An important factor that determines whether the relationship "works" as parties want it to is the balance of power between the parties. A power difference (the ability to control people and events) may easily frustrate the creation of a balanced relationship and equal distribution of benefits, whereas equality in power may facilitate a successful collaboration process. Measures such as breaking through the information asymmetry and providing access for both parties to

information and expertise may neutralize the power difference and thus take away the possibility for actions that are counterproductive to the collaboration process.

In case the power difference between parties is too great, for instance, due to the different market positions, a balance in power will not always be obtained easily. In those situations facilitating the use of the integrative negotiation method may eliminate contentious strategies, as it refocuses the negotiation on mutual results, sharing information, and finding win-win solutions that benefit both. This approach may be facilitated by enctheaging the high power party that takes the initiative to act cooperatively, and sufficiently enabling the low-power party to shift to an integrative approach.

In microeconomics, contracts theorists regard contracts as important means for fostering and safeguarding a cooperative relationship. The first way in which contracts support a cooperative relationship is by providing parties with a mechanism to enforce promises. The second way is through risk allocation. Risk-sharing clauses in contracts may create an incentive for both parties to do their best to perform and refrain from opportunism. The third way in which contracts are found to contribute to a cooperative relationship is by providing an explicit and detailed set of rules and procedures for dispute resolution. Dispute mechanisms allow parties to solve issues they did not specify enough in the contract or over which their interpretations differ.

Contracts may go beyond purely legal documents. The parties may draft contracts as "blueprints for exchange" and a means to plan the collaboration, to set expectations, and, consequently, reduce misunderstandings and costly missteps. The parties may include terms that are not enforceable but that provide guidance to the cthets on the parties' original intentions should the collaboration process break down.

We found that in economic contract theory there are different views on the extent to which contracts can and should specify the different aspects of a relationship.[2] Parties may discuss the benefits of a detailed contract; a more general document that deliberately leaves room for negotiation and improvisation (deliberately incomplete contracts); or choose a contract form that focuses primarily on

[2] See this Chapter, Section 3.

establishing the structure of the relationship (relational contract), or a combination of the three.

Parties to a contract may discuss exactly what they want to include in a contract. They may tailor their contract to their wishes until they find a level of certainty both parties can live with. In selecting what to include, what to regulate in detail, and what to define only in broad terms, they need to balance the benefits of leaving issues open and signaling trust against the dangers of being too naive and the serious risk of competitive bargaining and disputes that may jeopardize the relationship.

Non-legal mechanisms are also an important factor influencing relationships. Social rules and non-legal mechanisms play an important role in structuring a relationship. Social norms may be applied as governing rules for a relationship from the very start of a relationship (the stage of contact), and they may be enforced even where legal rules or a contract cannot. Reputation mechanisms may also contribute to a successful relationship. The threat of a loss of reputation as well as the goal of building a positive reputation may enctheage a successful relationship, as it prevents firms from behaving opportunistically. Introducing reciprocal fairness into a relationship is another non-legal mechanism that can contribute to a cooperative relationship.

Trust is regarded as essential for successful relationships. Individuals with whom one has a continuing relationship have an economic motivation to be trustworthy so as not to disctheage future transactions. And apart from pure economic motives, continuing economic relations often become imbued with social content that carries strong expectations of trust and abstention from opportunism.[3] When there is a low level of trust between parties, people may seek to write protective measures into their contracts. Examples are penalties for delays or deviations from the quality level or quality plan. Temporary substitutes for trust that parties may use include strategies such as making decisions reversible; making tiny moves that require only a small amount of risk; forcing the other party to make the first move; imposing legal restraints on the other party; and having an

[3] See Granovetter (1985).

outside party to vouch for the other to provide compensation if the other defects.[4]

When both contractual and non-contractual norms apply, parties may want to prevent "crowding out effects." Specifying norms in contracts and foreseeing remedies may be counterproductive if other non-legal mechanisms enforce a similar norm. Contractual measures may be used where the credibility of non-legal sanctions is deemed not strong enough to withstand opportunistic behavior.

The context of the parties' past, present, and possible future relationships is another variable that affects the development of the relationship. In the situation of pre-existing relationships, the parties may decide on tailoring the contract to their relationship.

Contract law is an important factor the parties have to take into account when creating the framework that governs their relationship. Legal rules provide safeguards against violent and opportunistic pre-contractual behavior, but they do not create serious obstacles for parties attempting to develop a structure for their relationship in the way they think best contributes to a cooperative relationship.

Rules of procurement law harness fair competition between contractors, and the application of the principle of good faith may help parties to create a basis of trust and to behave in a trustworthy manner.

Duties to disclose and liability rules provided by law may enctheage information exchange that benefits the development of a cooperative relationship. Both mechanisms may enctheage open communication in the earliest stage of negotiations. Disclosure rules compel parties to disclose certain relevant information, contributing to openness between parties that are about to enter into a contractual relationship. The notion of pre-contractual liability stemming from good faith also contributes to openness and decreases the chance of opportunism. It may be beneficial for the parties' relationship to agree to provide sufficient information during contracting, attach consequences to breaking off pre-negotiations, and specify the relevant circumstances and consequences.

The notion of good faith may have a role as guide for parties in creating a cooperative relationship. Deciding on a common concern for fair dealings and the protection of the parties' reasonable expectations may help parties create a basis of trust and to behave in a

[4] See Pruitt (1998: 475). See also Deutsch (1973); Wrightsman et al. (1972); Fisher (1964); Oskamp (1971).

trustworthy manner. Therefore, parties may consider applying it to the pre-contractual stage of their relationship even if there are no mandatory legal rules that oblige them to do so. By elaborating on the customary meaning of good faith, they can concretize the meaning both parties attach to it. That way they can make it explicit in the contract to prevent interpretation differences and misunderstandings later on.

It is important to know when parties have entered into a contractual relationship, because as of the moment a contractual relationship is established, stricter legal rules apply. The requirements for a legally valid contract give protection to parties, whereas the form allows much freedom. Furthermore, the parties may prevent uncertainty about the parties' intention to enter into a contract, by avoiding ambiguous language. Parties must be precise about their intentions: What are the conditions under which both deem a definitive contract to have been formed? These measures will help prevent misunderstandings about the status of negotiations or documents. Such rules for contracting may enctheage parties to be clear and transparent in their wishes and goals during the negotiation process.

Once a contract is formed, it becomes an important factor that governs the parties' legal relationship. Contractual clarity increases certainty for parties and decreases the chance of misunderstandings and conflict, which may threaten their relationship. First, this is because the obligations parties voluntarily agreed to may be enforced by a judge. Therefore, it is important that parties agree on the terms of the contract and be certain about the shared legal interpretation of those terms. The freedom to choose the content of contracts gives parties the liberty to make explicit not only the goals of their collaborative efforts but also the process for reaching those goals.

This makes contracts an important means of preventing misunderstandings and disagreements, as well as a way to confirm those understandings that parties imposed on themselves voluntarily and a way to enforce them. The fact that a third party may have to interpret their contract makes it even more important for parties to be clear about their exact intentions and how their understanding should be interpreted. To prevent interpretation differences, parties need to realize there are different legal regimes in contract interpretation. They may want to be especially specific in their agreements on the

abovementioned issues. Agreeing on interpretation rules or criteria may help parties in adequately defining terms during their contracting process. Finally, the status of negotiations or documents may be made explicit to contribute to the level of certainty that understandings about goals, the nature of the agreement, and that the interpretation of it by third parties is in accordance with what the parties voluntarily agreed.

Long-term relationships have their own dynamics, which require parties to think about a process that allows them to tailor their long-term contract to it. These contracts require additional maintenance measures compared to contact for single transactions. Long-term contracts in most cases lean strongly on economic interests created by the relationship between parties. The contract may ask for regular evaluation and inclusion of procedures for renegotiation. The parties may also look at the ethical rules in the construction sector and include them as rules that apply to the parties' relationship and are part of the contract. Due to the importance of these aspects of the relationship for a smooth continuation of the collaboration process, dispute settlement procedures that are less adversarial than litigation may become needed. Lawyers will have to deal with these norms and adjust principles to the long-term situation.

3 Conflict in infrastructure projects

In this section (corresponding with chapter 6 öf the study) we discuss variables that help to successfully foresee conflict. We distinguish between three steps: 1) after parties acknowledge that conflict may arise 2) they may take measures for identifying conflict (by making an inventory, and categorizing conflict) and 3) learn to understand conflict (by learning about the characteristics and dynamics of conflict).

The factors we found that help in the process of foreseeing conflict (next to the previously mentioned factors) are distinctions between *type of conflict (based on content, sthece; subject* (*relational —task conflict; differences of opinion— divergences in interest; competitive—cooperative conflict)*; *by appearance (is it latent or real, and is it about interests or opinions?); by the actors involved (the number of people or organizations); or by conditions that increase the*

chance of conflict (human characteristics or tendencies, organizational characteristics).

The following are factors that help in understanding conflict*: knowledge of the fact that conflict is a process that evolves; the fact that conflict knows different conflict stages; the fact that conflict has positive or negative effects; (from the economic perspective) different reactions to conflict in case of an efficient breach; (from a legal perspective) the effects of the qualification of a conflict as a legal conflict (violation of a right or duty); understanding conflict by knowing about the character of legal proceedings (facilitating conflict escalation); and knowing about the influence of lawyers.*

Conflict theory is a field in social psychology that presents an array of classification schemes that may help parties to identify conflicts when they actually arise. The parties may use a scheme to construct a checklist that will then enable them to scan a project for potential conflict and categorize those conflicts based on their different characteristics.

Researchers that focus on the content of conflicts refer to conflicts according to one or another "sthece of (conflict) behavior." Based on empirical findings, conflicts are divided into "kinds" or "typologies." Distinguishing among kinds of conflicts can help parties to determine the characteristics of conflicts that may arise or already exist between clients and contractors and fit them into one or another category. We outlined the main distinctions identified by social psychologists (relational—task conflict; differences of opinion—divergences in interest; competitive—cooperative conflict). Parties may also subdivide by subject of conflict, by appearance (is it latent or real, and is it about interests or opinions?) and by the actors involved (the number of people or organizations) or by identifying conditions that increase the chance of conflict. Examples are individuals' characteristics and human tendencies. The chance of conflict increases substantially if the persons seeking to collaborate have strongly differing characteristics. Also, the organizational context may foster conflict.

Based on these insights, parties can make a checklist with categories of possible conflicts to help to foresee conflict. Second, having in mind the different categories makes it easier to recognize a conflict. Third, it allows parties to find the adequate conflict management tools to deal with each conflict.

We regarded conflict as a dynamic process because the conflict may escalate and evolve. Behavior of one party affects the subsequent behavior of the other party. Particularly if conflict takes place in the setting of an ongoing relationship, the positions may change over time.

An important factor in the development of conflict is people's perceptions. In the view of scholars that regard conflict as a process, a certain conflict experience results in certain conflict behavior. Insight into this process may help parties to understand and possibly influence factors with the potential to escalate conflicts. It may help them identify a serious threat to a successful collaboration process and know how to deal with it. The perception of the parties in an infrastructure project can influence the chance that a conflict will arise. After a party has experienced behavior that harms his interests and has confronted the other party, a conflict may grow.

From a process perspective, we may identify stages in the development of a conflict. Glasl's theory of conflict escalation breaks down the escalation process into nine stages. Knowledge of those stages allows parties to categorize how serious a conflict is and the stage a conflict is in, and it may work as a diagnostic tool valuable for sensitizing people to the mechanisms of conflict escalation.

Conflicts may be regarded as phenomena with negative effects when they disrupt group functioning and, with that, the collaboration process. However, research indicates that low levels of conflict may in some situations stimulate information processing. This may lead to better decisions and better relationships, which may benefit a collaboration process and ultimately help in optimizing project goals. Therefore, parties need to weigh the potential beneficial effects against the potential costs—negative effects—of conflict. They may discuss before and during the project to what extent differences of opinion are likely to have negative effects and to what extent they may be beneficial, based on criteria such as the potential chance and effects of groupthink, a lack of creativity, sub-optimal decisions, relational conflict, and the presence of a cooperative atmosphere. Knowledge of the behavior of rational actors may help parties predict and influence conflict at the earliest stage.

Economic theory provides us with insights into situations of conflict referred to as bargaining situations in which parties distribute an object or amount. From game theory, we may draw that in

negotiation situations (with limited restheces), every rational player balances in his choice of behavior between bargaining in an attempt to achieve a higher value of a more favorable bargain against the probability of reaching no bargain at all. The parties may foresee that even if parties initially focus on reaching the highest possible joint outcomes in their negotiations, after obtaining such an outcome they develop an incentive to compete for the largest share of it. Parties should therefore anticipate that in every negotiation situation in which both sides choose to persist in advancing their self-interest, they may experience conflict.

Irrational behavior may also cause conflict. First, the same irrational behavior that gets in the way of optimal decision making in negotiation situations may lead to conflict. Identifying these traits in behavior is important for recognizing potential conflict. Another possible sthece of conflict that can keep parties from rational decision making is information asymmetry between parties. The fact that parties do not have the same information may foster suboptimal behavior, misunderstandings, and strategic behavior, all of which may lead to conflict. Behavioral bargaining theory indicates that adversarial negotiation strategies may particularly foster conflict. Research indicates that such strategic behavior in repeated games—a succession of negotiation situations such as during in a relationship between parties carrying out a project—leads to conflict in the long run, although it may be rewarding in the short run. Other stheces parties may anticipate are negotiation tactics they think will compensate for disadvantages, such as concealing, lying about one's real interests, or attempting to intimidate the other party by threatening. Parties need to be aware that these "hardball" strategies may aggravate conflict and in turn damage the relationship and collaboration process. Starting an open discussion about the consequences and preferences for the use of such strategies may reduce their potentially damaging effects. Finally, economists have identified misclassification as a sthece of conflict: for example, when an act of cooperation is interpreted as an act of defection.

A breach of a contract, even when considered an "efficient breach," is another sthece of conflict that we draw from economic literature. There are various reasons why the system of remedies does not always work adequately in practice and damage sometimes remains uncompensated. Moreover, in long-term relationships, short-

term maximising behavior is perceived as opportunistic, particularly when transaction costs are high; if there is an information asymmetry, opportunistic behavior and conflict must be anticipated. To help predict such an outcome, the parties may draw up a mutual list of situations in which they fear a breach that will not be compensated.

Often, what starts as a low-level disagreement between collaborating parties is eventually translated into a legally valid claim. Disagreement between the parties may or may not be classified as a legal conflict and allow for legal actions. One may say that a legal conflict materializes when the party that has the legal claim to relief pursues his claim, starts legal proceedings against the party that incurred the harm, and demands compensation for the damage or enforcement of his legal rights. Knowledge of the legal criteria for conflict allows parties to distinguish between a conflict as a legal conflict or non-legal disagreement, and it allows them to anticipate the potential escalation of a legal conflict into a full-scale legal dispute. Moreover, they may foresee that in the translation of a disagreement, the actual issue at hand may be reframed, which may take the parties' attention away from the actual problem. The parties also need to foresee that not every disagreement can be fought over in cthet and that some disagreements will need to be addressed in other ways.

Legal conflicts may arise due to a violation of rights or duties under the law or a violation of what parties agreed upon in a contract. When choosing the response to a violation, the parties need to be aware that legal proceedings facilitate a competitive approach, which may cause further conflict escalation. In other words, the legal system enctheages the parties to adopt strong stances at the expense of focusing on their underlying interests and working towards solutions that benefit both parties.

By taking a traditional legal approach, lawyers may increase competition, as they are trained to adopt the adversarial approach facilitated by the legal system. Moreover, if one lawyer initiates competition, the other will most likely follow suit, which may lead to escalation of the conflict, whereas there are not many incentives that enctheage lawyers to use the integrative negotiation method. The parties may anticipate these tendencies when selecting a lawyer, and by involving lawyers in analysis of the real problem at an early stage, they may try to keep threshold low and prevent a conflict from becoming a legal problem.

4 Dealing with conflict in infrastructure projects

In this section (corresponding with chapter 7 of the study) we address factors that may help parties to manage conflict successfully. We focus on the factors (techniques) available to the parties to prevent conflicts, factors that influence the process of conflict resolution, and factors that influence peoples reaction to conflict (in conjunction with the previously mentioned factors of Chapter 4 of the study).

Factors influencing conflict management we addressed under the social psychological perspective include: *choices in kinds and levels of conflict management (passive, active, one sided, two sided, three sided); conflict resolution style; third parties (roles and interventions, procedures); use of dispute system.* The factors influencing the process of dealing with conflict from the economic perspective include: *contracts (contents and dispute resolution clauses); non-legal conflict management systems;* The factors influencing the process of dealing with conflict from the legal perspective include: *the tools the legal system provides for parties to deal with conflicts (norms during legal negotiations and legal proceedings); ADR forms.*

The factors that influence reactions to conflict we discussed under the social psychological perspective include: *expectations of conflict management processes; peoples' preferences for a certain approach; the nature of the relationship; concern for the other party; the perception of the conflict at hand; and the moods of the parties involved;* The factor that influences reactions to conflict we addressed under the economic perspective are *rational actors tendencies in dealing with conflict;* The main factor that influences reactions to conflict we highlighted under the legal perspective is *lawyers' guidance in conflict resolution.*

Social psychologists have distinguished several variables that influence the cthese of a conflict management process when choosing a conflict management approach. For a successful conflict management process, the approach of the parties in conflict may vary on a scale from passive to active conflict management based on the kind of conflict, and the preferred approach strongly determines what instruments and steps are appropriate to take in a conflict.

The parties may want to opt for the two-sided approach as the preferred approach as it tends to lead to more highly-valued outcomes

and greater satisfaction when compared to conflict management on the two other levels. Gaining some basic knowledge of the variety of options in conflict resolution allows the parties to discuss the options together and subsequently choose the desired level.

The conflict resolution style that is used in dealing with conflict is another variable. The best known schema identifies five basic negotiation or conflict resolution styles that people tend to choose: competing, problem solving, yielding, compromising, and avoiding. Each of the styles have different effects on the conflict management process depending on the kind of conflict (as discussed in Chapter 5). Having insight into the characteristics of the conflict and the characteristics and consequences of those styles will enable the parties to optimally organize the process of conflict management for particular kinds of conflicts. Depending on the urgency of an intervention, the importance of the conflict matter at hand, and the type of the conflict (difference of opinion, divergence of interest, or relational conflict), the parties may try to prevent or avoid relational conflict and try to problem-solve in task conflicts. In conflict situations concerning a pure difference of opinion, some discussion may actually lead to better solutions, and the parties may employ compromising or even forcing as their conflict resolution style.

If the parties fail to resolve an issue by themselves, they may involve a third party who may be appointed different roles. The parties may discuss what they need based on various roles depending on the subject of attention (content or process intervention), the context in which the third party operates (formal or informal), and the level of authority he has (advising, facilitating process, or binding decision making). Parties may also choose from a number of third-party procedures. These procedures vary on the extent to which they facilitate future collaboration, the level of intensity of the conflict (moderate or severe) they are most suitable for, the importance legal norms play in the procedure, the time it takes, and the nature of the outcome (facilitation, advice, or decision). Applying these variables as criteria in choosing an adequate conflict management approach may help the parties to determine the kind of solution they want, the role they want the third party to play, the kind of procedure that best facilitates this role, the qualities the third party needs to have (expertise and skills) to fulfill this role, and whether it should be an internal or external (neutral) party.

Studies have provided insight into people's reactions to conflict and their preferred approach in conflict management. The findings of conflict scholars on people's expectations of both the management process and its outcome offer a means to predict parties' likely behavior in dealing with conflict and yield information about people's preferences and expectations in conflict management. Parties may take this into account when they have to decide on the procedures to resolve differences to both sides' satisfaction. A high level of mutual satisfaction with the outcome and the process may facilitate a successful continuation of their collaboration, whereas conflict management that leaves one of them frustrated may be a threat to the collaboration process. To determine their preferences in a particular situation, the parties may, for example, use questionnaires. This enables parties to tailor a conflict resolution approach to both parties' preferences. The parties may apply criteria to determine the most constructive approach in the particular case (the certainty or confidence one has that one will win, how high the stakes are, the level of power imbalance, and the legal nature of conflict).

A number of other factors influence people's choices of conflict management in a specific conflict situation. The factors discussed are the nature of the relationship and concern for the other party, the parties' perception of the conflict at hand, and the parties' moods at the time of the conflict. Creating a strong relationship, facilitating trust and building in de-escalation techniques in conflict resolution facilitates successful conflict management.[5]

The parties may organize a variety of instruments into a dispute resolution system, which may guide the parties through a series of defined steps when designing their system and help them to be more effective in their conflict management process. What parties may do to organize their system towards successful conflict management is: 1) being aware of and thinking about the role of organizational structure and goals in conflict management, and 2) analyzing this structure critically and crafting a system that leads people away from fight or flight reaction and towards a more cooperative approach of conflict. The parties may use and develop the conflict regulation mechanisms within an organization.

[5] See also Ackhof (1967).

From economic theory on contracts, we learned that as contracts may be enforced they function as conflict-prevention and resolution mechanisms. The dispute resolution clause in a contract may also determine the steps parties need to take in conflict management. However, contracts as prevention and resolution mechanisms have their limitations due to the fact that the costs of enforcement may stand in the way of actually pursuing it (litigation is rather costly and starting legal proceedings may not always be worth the investment depending on the issue at stake). Parties may want to write a clear and precise contract to prevent conflict and also include clear conflict resolution provisions in their contracts as a backup. The parties may include measures in the contract such as obligations to compensate damage incurred by a breach of one of the parties.

The models developed by decision theorists may help analyze and decide which situations and under what conditions to pursue (or expect) litigation or other forms of conflict management. According to decision theorists, a self-interested party should decide in such a way that minimizes his costs and maximizes his benefits. These considerations may help parties to evaluate the decision to start legal proceedings or to settle: the choice for a judge or jury trial, the effects of the costs of proceeding at each stage, and the influence of potential precedential and preclusive effects of a judgment in current or future litigation on parties' decisions to litigate or not. Rational actors that decide about matters which may result in conflict should base their decisions on as much information as they can lay their hands on and an estimation of the probable reactions and outcomes of the other party's actions. Ideally, to maximize the amount of information available, the client and contractors should discuss these questions openly and inform each other about their actions so that they may anticipate this behavior and optimally manage the potentially negative consequences of conflict.

Clients and contractors may also opt for non-legal conflict management systems. These are referred to as private legal systems or private ordering. Parties may opt to use these systems of behavioral rules in conflict management as they may influence contracting parties' conduct to the same extent as legal rules and contractual arrangements. We also found that transparency may enhance trust and enctheage reputation effects. For reputation to be an effective conflict prevention mechanism, the parties may provide for a high level of

transparency in the behavior of parties and in the criteria that build or destroy reputations. For instance, it may be apparent who competes instead of cooperates and who follows procedures and meets agreements.

A private system may either complete the system of legal rules or be in competition with it. Parties may choose private rules and sanctions to apply as conflict prevention mechanisms alongside or instead of legal sanctions. When such rules conflict with legal rules, parties must agree on which rules to apply and provide transparency about them and their meaning.

The possibility of (easily accessible) third-party interventions is often regarded as an important incentive to prevent conflict. However, resolving conflict with the help of third parties is also regarded as a costly way of managing conflict with potentially negative side effects. The extent and costs of third-party interventions affect the bilateral conflict management. Conflict resolution by third parties may help prevent conflict, particularly when it is easily accessible and not too expensive. Parties may choose to provide for disincentives as arbitration tends to be expensive and cthets and sometimes even arbitrators have difficulty inferring the intentions of parties in a contract and, therefore, legal enforcement is often sub-optimal when compared to private resolution. Involving a third party in facilitation of negotiations may also prevent the use of third-party procedures, as such an individual may help prevent parties from abandoning negotiations when there is still a viable bargaining range. Parties may organize the availability of third-party interventions in such a way that parties are enctheaged to solve issues through the use of a low cost procedure, with the use of expensive procedures as a final option. Parties may want to come to an agreement on how they perceive arbitration. To prevent arbitration proceedings from becoming a way to delay a conflict resolution process, they may agree to make the rulings of an arbitrator binding and then use them only for certain kinds of conflicts.

The legal system provides parties with ways to deal with conflict, and these in turn influence people's choices in conflict management. Legal negotiations take place when a conflict has arisen, both before and during cthet proceedings. The initiation of legal proceeding*s* is the second stage. The legal system provides some direction for parties seeking to resolve their differences. It may shape conflict management

behavior by providing norms. Legal principles, rules, precedents, statutes, and in particular contract law and the contract itself also provide guidelines for parties.

Lawyers also guide parties in conflict resolution. They usually provide help to one side to reach agreement, settle a claim, or solve conflicts. A lawyer is particularly indispensable in complex cases, as the law itself often does not give clear answers.

Most decisions about the way conflicts will be dealt with can be addressed when drafting a dispute resolution clause during formation of the contract. When a conflict arises, parties often do not recall the exact ideas behind contract terms. Conflict resolution provisions in particular tend to stay rather vague. They often do not specify what steps parties should take, but rather refer parties either to arbitration as a means of conflict resolution or to the applicable law. A clear low cost and easily accessible procedure is often unavailable.

The possibility—and threat of—legal proceedings may elicit competitiveness. It may enctheage parties to take uncompromising positions and not share information that may weaken one's position in cthet. The involvement of lawyers in conflict resolution is often necessary, but may also cause further problems. As a result of their training in dispute resolution through the legal system, lawyers may tend to oppose non-adjudicative approaches to conflict management

The guidance parties obtain from the legal system, contracts, and lawyers does not necessarily lead to successful conflict management. In fact, following their guidance may even frustrate conflict resolution. Therefore, the parties must carefully decide when to rely on the law, when to rely on other (ADR) systems of conflict resolution, and when to make supplemental arrangements.

The legal system provides barriers as well as some footholds for parties that want to go to cthet. Although it is meant to provide parties with a chance to resolve their differences, due to its characteristics these proceedings may frustrate a collaboration process.

ADR forms are much less regulated and more flexible. They can be agreed upon and stipulated in a contract. The aforementioned conflict resolution forms are more flexible and involve parties more, thus better living up to people's procedural preferences. Parties can use the instruments procedural law provides to enctheage the other party to live up to their obligations.

Parties in conflict should be aware of the potentially negative effects of strategic use of the legal system and use alternative means of conflict resolution when possible, as they are more flexible and better suited to the wishes of parties.

Y. Peter Kamminga

CHAPTER 4

IV CHECKLISTS FOR SUCCESSFUL COLLABORATION IN INFRASTRUCTURE PROJECTS

1 Developing 'checklists'

In this chapter (corresponding with Chapter 8 of the main study) we take the first step toward making the set of recommendations suitable for practical use. We propose a framework that helps to place the recommendations resulting from the study in the context of infrastructure projects. For this purpose we transform the set of recommendations into "academic checklists." In the main study we categorize the recommendations according to their potential to improve different variables of project success. We categorize by project success mechanisms that may be used to increase the value of the project success variables.

We find that the largest group of recommendations may be used in project success mechanisms that enctheage conflict management, commitment mechanisms, monitoring, feedback mechanisms, and decision making mechanisms.

Secondly, we argue when the recommendations may best be applied during the construction process. We distinguish between a number of situations during the tender, construction, and maintenance stages in which the parties may particularly benefit from the recommendations. We organize the recommendations by the stage in which we think they may be of most value to instill a successful collaboration process between client and contractors. we distinguish a number of particular "activities" during the construction process in which decisions are made or interaction takes place that significantly influences the cthese of the collaboration process. We argue that applying the recommendations during particularly these activities may be of the greatest value for the overall collaboration process. We depart from the assumption that the earlier the recommendations are applied in the process, the better they contribute to successful collaboration

Finally, we suggest three governance structures we think are suitable to implement the recommendations on a project level: the

rules for the tender stage (tender regulations), the general contract, and a project code of conduct (or charter). We chose these institutions because parties are free to decide, to a significant degree, the design of these institutions, and may, therefore, benefit from freedom to implement these recommendations.

2 Introduction to the 'checklists'

2.1 The goals of the checklists

We present the set of recommendations as academic checklists for 1) developing or evaluating "project performance mechanisms" and 2) addressing the recommendations at the adequate time and situation during the construction process.

Both lists are meant as a first step towards developing a practical tool to help the client and contractors to establish a collaboration process that may guide them toward project success. They give an overview of measures parties may consider when they want to facilitate cooperation and curb adversarial behavior during the various steps of the tender and construction stage. In the lists we indicate the sub-processes they concern: negotiating, developing relationships, foreseeing conflict, and dealing with conflict.[1]

2.2 Suggestions for applications lists in context of infrastructure projects

The two checklists may be used in helping to structure one or more of the following processes:

- To decide on the choice of project success mechanisms to instill and maintain a successful collaboration process;

[1] For the theoretical and empirical background of the proposed checklists, we refer to the analysis of cooperation literature in Chapters 4-7 of the underlying study. The structure of the first checklist is developed in Chapter 8.2 and the second one in 8.3.

- To design a system of governance structures that guide behavior during the project (such as tender regulations, the contract, charter or codes of conduct);
- To evaluate an existing set of governance structures on their contribution to a successful collaboration process;
- To evaluate the extent to which a successful collaboration process is facilitated on a particular project;
- To discuss and evaluate the collaboration process during and after projects.

2.3 Prioritizing and using recommendations

The parties need to decide upon the interventions suggested in the recommendations they think have potentially the highest impact in a particular project and best fit their preferences. We present the sets of interconnected interventions in charts. These checklists may be regarded as guides in the process of *choosing and developing* mechanisms that faciliate successful collaboration.

When using the lists in their discussions parties may want to apply criteria to prioritize the recommendations. We suggest using criteria of efficiency, effectiveness, satisfaction and relationship. These criteria are used by dispute system designers Ury, Brett and Goldberg, Costantino and Merchant, and Susskind.[2] They suggest applying them to determine whether a dispute system lives up to its goals. When adapted to collaboration in infrastructure projects, they can help to determine which recommendations most contribute to achieving project goals (in terms of time, costs, but also in amount of claims, conflicts, and satisfaction with process and outcome). The following questions may be helpful when prioritizing the recommendations or the project success mechanisms they may contribute to:

[2] See also Martinez and Smith (forthcoming 2009) for diagnostic questions and categories to help analyze DSD).

Efficiency
- Which mechanisms or recommendations will make most difference in terms of time and costs? - What are the costs of successfully implementing a mechanisms or recommendation and what the benefits? - When during the construction process the recommendation will attain the highest possible beneficial overall effect?
Effect on relationship
- Will applying the recommendation affect the relationship between parties as entities positively or negatively? (in short run and/or long run) - Will it affect the relationship between the representatives positively or negatively? (in short run and/or long run)
Satisfaction
- Will it lead to satisfaction with process? (by representatives and their entities) - Will the outcome be experienced as satisfactory? (by represenatives and their entities)
Effectiveness
- What project goal it contributes to? - What is most likely the nature of the outcome? - How durable is the solution? - Will compliance be high? - How will the measure affect the cooperation environment (e.g. in terms of commitment, atmosphere, costs?)

Figure 12: Criteria for prioritizing recommendations

3 CHECKLIST FOR DEVELOPING MECHANISMS CONTRIBUTING TO PROJECT SUCCESS[1]

Mechanisms	Recommendations
Commitment mechanisms	*NEGOTIATION PROCESS* 1. *Agree on a problem-solving negotiation style and build in disincentives for contending.* 2. *Enctheage the powerful party to set the tone with cooperative behavior, and make clear the expectation that the other party will reciprocate.* 3. *Create mechanisms that make cooperative behavior enforceable; for example, by agreeing that mutual benefit is the goal and that each party's behavior toward this end will be evaluated.* 4. *Make reputation an incentive by punishing a party who has a reputation for opportunistic negotiation behavior and rewarding cooperative behavior; for instance, a contractor may gain extra points in tender procedures for having the reputation of being a cooperative negotiator.* 5. *Make negative and positive behavior transparent and known outside a project in order to allow the reputation mechanism to work (order to allow the reputation mechanism to work (for instance, through making public an evaluation of the parties' negotiation behavior).* 6. *Agree to use existing normative standards of cooperative behavior or market conventions as a social norm in interactions.* 7. *Set clear expectations for behavior and provide a means to identify and curtail opportunistic behavior.*

[1] See for information on the background of the mechanisms the checklist Chapter 8.

	RELATIONSHIP DEVELOPMENT 8. *Facilitate mechanisms in a relationship that allow both parties to reward the other's cooperative behavior and punish defective behavior.* 9. *Define in the contract the precise meaning parties attach to abstract concepts, such as rules of respect, fairness, reciprocity and other concepts they want to be of guidance in their relationship.* 10. *Grant, as a countermeasure to potential power imbalance, as much equal access to information and expertise relevant to the project as possible to both parties.* 11. *Promote an integrative approach and protect the less powerful party from competitive responses; for example, allow him to choose the method for resolving a clash of interests.* 12. *Enctheage the more powerful party to set the tone with cooperative strategies that will inspire the weaker party to react in the same way.* 13. *Let the contract contribute to a cooperative relationship by providing a reflection of the rights and obligations of parties; by providing a detailed set of rules and procedures for resolving disputes; by providing a legal framework within which future negotiations over the terms of trade will take place.* 14. *Use the contract as a "blueprint for exchange" and a means to plan the collaboration, to set partner expectations, and, consequently, reduce misunderstandings and costly missteps.* 15. *Include characteristics of the collaborative process in a contract to help clarify parties' intentions, even if they are not necessarily legally enforceable.* 16. *Use protective mechanisms in a contract only as a temporary substitute for trust, and after parties have build it up, cut back on protective mechanisms.* 17. *Learn from experience with the other party how to replace standard contracts with a custom made contract.* 18. *Be specific in contract terms, and do not use unclear language. Define ambiguous terms; do not leave anything out; use terms consistently; and fully account for any sensitive issues unless parties*

	want default rules to apply. 19. *Agree on criteria for contract interpretation rules, refer to them in the contract, and prevent ambiguity by being specific.* 20. *Agree on a process of contracting that is tailored to the relationship, and be specific about how this should be done.* 21. *Agree on the norms that are applicable. Make them part of the agreement.*
Selection mechanisms	*NEGOTIATION PROCESS* 1. *Stimulate cooperative negotiation behavior by hiring employees with a pro-social orientation.* 2. *When involving lawyers or third parties, make sure to know which method they support.* 3. *Involve lawyers who support and are experienced in using both integrative and distributive negotiation methods.* 4. *Make reputation a selection tool for future projects (or additional parts of a current project).* 5. *Involve people with a strong desire to fulfill mutual interests and a pro-social orientation in negotiations.* 6. *Try to gain insight into the other parties' (contractors/project participants) motivations, as they indicate the tendency to demonstrate a cooperative negotiation approach.* 7. *Determine what they (contractors/project participants) expect from the relationship and how they define a relationship that "works."* 8. *Determine whether there is enough of an overlap in desires between parties and a chance for profitable future encounters before entering into a relationship.* 9. *Determine if and how both parties' long- term self-interest is served in the relationship before committing to it.*
Training	

mechanisms	*NEGOTIATION PROCESS* 1. *Stimulate cooperative negotiation behavior by developing team members' negotiation skills.* 2. *Allow management to set the example of cooperative negotiation behavior.*
Monitoring and feedback mechanisms	*NEGOTIATION PROCESS* 1. *During negotiations, evaluate whether the parties' representation of a situation is blurred as a result of heuristics, and, if so, try to correct those images.* 2. *Prevent suboptimal negotiation outcomes caused by cognitive biases by checking whether the biases identified in literature influence the negotiations, and, if necessary, correct them.* 3. *Discuss each others' views of negotiation situations regularly. For instance, share negotiation beliefs, perceptions of one another, and concepts of a successful business relationship.* 4. *Determine if representations match and, if not, try to reframe and create a mutual view and interpretation of negotiation issues.* 5. *Exchange views to check if the representation on which decisions are based is correct and complete before making decisions final. For instance, introduce a cool-off period in which parties may reflect on their positions or collect further information.* 6. *Identify and correct for personal biases, others' biases, and mutual decision making biases by evaluating decisions before finalizing them. For example,:* a. *Schedule "cool-off" periods to create space to ponder decisions before they become final.* b. *Have parties trade each other's perspectives or involve a neutral third party in the decision making process to identify irrationality.* c. *Raise the stakes in a negotiation situation to enctheage decision makers to be more careful.* d. *Increase awareness of biases by educating people about the phenomenon.* 7. *Assess and agree on how to deal with irrationalities and agree who can best manage the consequences and costs of a biased decision. A responsible problem solver must be delegated to*

	limit the costs of an irrational decision. *RELATIONSHIP DEVELOPMENT* 8. *Anticipate that a strong imbalance in power may frustrate a balanced relationship and be a disincentive for cooperative behavior.* 9. *Anticipate that the framework for a relationship (particularly the contract) may reflect and amplify unwanted power differences.* 10. *Develop ways to break through negative effects of power differences; for example, creating avenues for evaluation of the collaboration process and cooperative behavior by parties themselves or a neutral third party.* 11. *Set clear expectations for behavior and provide a means to identify and curtail opportunistic behavior.* 12. *Evaluate the communication process and communication channels regularly, and modify them as necessary.* 13. *Anticipate when drafting legal documents that, in the use of lawyer's services or legal procedures, the legal system promotes a distributive approach, and most lawyers tend to use a distributive negotiation method.* 14. *Assure that when involving lawyers or third parties, they support and are experienced in using both integrative and distributive negotiation methods.*
Interaction and communication mechanisms	*NEGOTIATION PROCESS* 1. *Try to get insight into other's motivations, as they indicate the tendency to demonstrate a cooperative negotiation approach.* 2. *Involve people with a strong desire to fulfill mutual interests and a pro-social orientation in*

	negotiations. 3. *Agree on a problem-solving negotiation style, and build in disincentives for contending.* 4. *Promote certainty in a cooperative reaction. For instance, agree on reciprocity and share aspects of negotiation agendas.* 5. *Agree to invest in the relationship, and specify how these investments will be made.* 6. *Agree on face-to-face contact as the preferred communication channel. Only choose other ways of communication when face-to-face negotiations are not effective or possible, and when there is already a relationship established and the chance of misunderstanding and conflict has decreased.* 7. *Assign capable communicators to the project team, and provide communication training to maximize clear communication.* 8. *Agree to use existing normative standards of cooperative behavior or market conventions as a social norm in interactions.* 9. *Reduce competitive strategies by discussing preferred strategies beforehand and downplaying factors that may enctheage this; such as information asymmetry between parties.* 10. *Discuss strategies as they influence the relationship, and make the responses people will give to certain strategies.* 11. *Agree on the tit-for-tat strategy to set the right cooperative tone and to correct uncooperative behavior.* 12. *Take time to build trust, both before and during negotiations, and create a trustworthy partner reputation.* *RELATIONSHIP DEVELOPMENT* 13. *Discuss if there is an overlap in desires and a chance for a profitable future encounter before entering into a relationship.* 14. *Discuss between parties what they expect from the relationship and how they define a relationship that "works."*

	15. Consider integrating social norms into the different phases of the relationship-building process, as they may replace or complement contract terms to prevent problems, particularly for parts of the agreement that are hard to enforce legally. *16. Ascertain if social norms are at work and are a credible threat and if contractual remedies might trigger crowding out effects.* *17. Consider possibilities for non-legal punishment, such as the use of reciprocal fairness and reputation mechanisms.* *18. Agree that the contract will be regularly renegotiated or split into smaller contracts to enable the parties to build trust and cut back on protective contract terms when trust is built between parties.* *19. Make sure that both parties are aware that not communicating information in either the negotiation or formation phase can have legal implications. Duties to inform or warn may be invoked later if a party does not live up to its side of the bargain.* *20. Anticipate the influence parties have on each others' negotiation behavior and motivations.*
Decision making mechanisms	*NEGOTIATION PROCESS* *1. Agree that integrative negotiation is the generally used negotiation method during ongoing negotiations between project partners.* 2. *Consider distributive bargaining in situations of minor interest to the parties based on costs of negotiation and the importance of the issue at hand.* *3. Negotiate toward optimal outcomes based on relevant information, while taking into account all possible options and drawing on accurate inferences.* *4. Follow rational decision making steps (define the problem, find criteria, give criteria a value, identify alternatives, test each alternative against the criteria, calculate the optimal decision, reach a decision, and act on it).* *5. Work toward negotiation outcomes that optimally satisfy both parties' preferences in light of the*

	ongoing negotiation process. 6. *Strive for a negotiation outcome in which further reallocation of restheces can no longer lead to an improvement for one without leaving the other worse off (the Pareto optimum).* 7. *Strive for negotiation outcomes that are mutually beneficial.* 8. *Set the boundaries for negotiations by referring to legal norms that are applicable in cthet (use the shadow of the law).* 9. *Agree upon and draft "legal rules for cooperative negotiation" in order to tailor negotiation process to the parties' wishes within the margin set by the legal system.* 10. *Anticipate irrationality in decision making which may cause conflict, such as the tendency to escalate, ignorance of the perspectives of the other party, and reactive devaluation.* 11. *Anticipate information asymmetry, differences in the estimation of risks, and different views of uncertainty, interests, and roles.* 12. *Anticipate the use of opportunistic strategies that may mislead the other party and increase the chance of conflict, such as withholding information or over-asking.* *RELATIONSHIP DEVELOPMENT* 13. *Determine if and how both parties' long- term self-interest is served in the relationship before committing to it.* 14. *Agree on and describe the guidelines and principles both parties want as central guidelines in the relationship.* 15. *Be aware of and use the large bandwidth the legal system provides when building a relationship, as it enables parties to establish the framework which they find optimally contributes to a cooperative relationship.* 16. *Be explicit and agree on the legal rules that apply to the process of contract formation, either mandatory rules or rules to which parties agree.* 17. *Determine whether the principle of good faith applies in contract negotiations and formation and*

	what its consequences are, and, if not mandatory, consider applying them. 18. *Use the freedom that the legal system provides as to the content of the contract to tailor it to the relationship in the manner parties think best enables a successful collaboration process.* 19. *Discuss and consciously choose the legal regime that applies to the contract, as this choice will impact the way in which cthets interpret the contract.* 20. *Consider the different kinds of contracts and determine which part of the rules governing their relationship the parties want to strive for completeness, where incompleteness best supports the relationship, and where elements from relational contracts may be incorporated.* *Complete contracts* 21. *Determine for which parts of the contract the certainty of contractual completeness is worth striving for and realistic. Acknowledge the indefiniteness of certain parts of a relationship.* 22. *Be realistic about completeness; do not try to aim for completeness where it concerns uncertain future conditions that may arise in the cthese of the relationship, and do not try to characterize complex adaptations.* 23. *Carefully weigh the preferred level of certainty against the costs of negotiation and enforcement, as the cost of negotiating and enforcing a wide variety of terms for particular situations increases as their probability decreases.* 24. *Realize that some variables of a relationship included in a contract may be very hard to verify by cthets, and, therefore, hard to enforce by law.* *Incomplete contracts* 25. *Weigh the positive effects of lowering transaction costs and signaling trust against a possible decrease in certainty.* 26. *Anticipate mechanisms of commitment due to investments in the relationship and the will to achieve mutual benefits, which may enctheage behavior in the best interest of the relationship.*

	27. Beware of the possibilities for interpretation differences inherent in incompleteness, which may lead to disputes during the relationship. *28. Avoid including terms that leave room for competitive bargaining, and prevent ambiguity or insufficiently defined contingencies in contracts.* *29. Fill in complex details of incomplete contracts after parties reach agreement by using a "phasing strategy" after the initial agreement.* *Relational contracts* *30. Agree upon and establish a process through which future terms of trade will be determined, thus establishing a set of basic rules governing the ongoing relationship.* *31. Explore if parties trust informal mechanisms for enforcement, particularly in the relationship, and evaluate whether or not the relationship is enough of an incentive.*
Conflict identification mechanisms	*FORESEEING CONFLICT* *1. Identify stheces of conflict before the start of a project to predict and anticipate future conflict and diagnose existing conflict.* *2. Make a checklist together based on categories: relational vs. task, differences of opinion vs. divergence of interest, etc. Scan the project for potential conflict.* *3. Distinguish between types of conflict and categorize conflicts based on their cause [see checklist].* *4. Identify project members' perceptions of project and individual goals to predict conflicts.* *5. Identify mechanisms which may motivate cooperative or competitive behavior in situations with conflict potential,(such as instructions, rewards and punishment systems, norms, or codes of conduct.* *6. Anticipate and recognize conflict dynamics, in which feelings of fear, anger, distrust, or resentment lead to unfriendly reactions which increase the intensity of conflict.* *7. Identify the intensity of a conflict by using Glasl's 9-step escalation model.*

	8. *Identify situations in which both parties trying to obtain a better deal in the short run may increase the likelihood of an impasse that will produce conflict in the long run.* 9. *Anticipate irrationality in decision making which may cause conflict, such as the tendency to escalate, ignorance of the perspectives of the other party, and reactive devaluation.* 10. *Anticipate information asymmetry, differences in the estimation of risks, and different views of uncertainty, interests, and roles.* 11. *Anticipate the use of opportunistic strategies that may mislead the other party and increase the chance of conflict, such as withholding information or over-asking.* 12. *Anticipate breach without compensation if there are obstacles to enforcement of damages, such as information asymmetry or shortage and high enforcement costs.* 13. *Discuss together the situations in which breach is feared and estimates of the chance of breach.* 14. *Determine if the disagreement may be reframed as a legally valid claim.* 15. *Distinguish between the disagreement as experienced by parties and the legally valid claim.* 16. *Anticipate that legal translation of a problem may enctheage competition, and makes a win-lose outcome probable.* 17. *Anticipate that not every problem between parties can be translated into a legal conflict adequately and that some problems need to be canalized in other ways.* 18. *Weigh the possible positive effects of conflict (better decision making, more creativity) against the potential negative effects of conflict (a negative working atmosphere, decline in satisfaction and output).* 19. *To find a constructive level of conflict:* a. *Discuss before and during the project to what extent differences of opinion are likely to have negative effects and to what extent they may be beneficial. Base the discussion on criteria such as the chance and effects of groupthink, a lack of creativity, sub-optimal decisions, relational conflict, and the presence of a cooperative atmosphere.* b. *Take measures to prevent silencing of conflicts and failing to express differences in values*

	and preferences during the project. *c. Diagnose conflicts when they arise and isolate potentially fruitful differences of opinion.* *d. Enctheage and canalize differences of opinion if they stimulate creativity or information processing, curtail problem solving, or lead to better decisions.*
Conflict management mechanisms	*DEALING WITH CONFLICT* *1. Distinguish between and discuss early on during the collaboration process the options in conflict management, such as the level on which to deal with conflict.* *2. Choose together the preferred level on which to deal with conflict.* *3. Discuss and agree on a general approach and on particular approaches to conflict situations.* *4. Choose problem-solving as the general approach in conflict resolution.* *5. Agree on particular conflict resolution styles for different conflict situations based on the kind of conflict.* *6. Make a trade-off between what is optimal for the collaboration process and the importance of the issue.* *7. Avoid relational conflict and problem solve in task conflict, except in situations of pure differences of opinion where compromising or even forcing may be beneficial.* *8. Agree upon the third party conflict management processes for a project.* *9. Use criteria of intervention, context, and level of control to determine the nature of the process in a specific conflict.* *10. Use criteria to choose between processes that have the character of mediation, arbitration or a hybrid form: Do people involved need to cooperate in the future? How intense is the conflict (moderate or severe)? Are legal norms of high importance, and is there time pressure?* *11. Determine what is necessary in a conflict based on the aforementioned criteria. Determine the kind of solution the parties want, the role they want the third party to play, the kind of procedure that*

	best facilitates this role, the expertise and skills the third party needs to have to fulfill this role, and if it should be an internal or external (neutral) party. 12. *Let the first reaction to conflict be a cooperative one, as first actions tend to be decisive for how a conflict management interaction evolves.* 13. *Align available conflict resolution mechanisms to general preferences about outcome, such as truth finding in differences of opinion and compromises or intergrative solutions in conflicts of opposing interests.* 14. *Take people's procedural preferences into account when agreeing on the third party procedures offered, and choosing a procedure for a particular conflict; for example, organizing them from maximum influence to decreasing control.* 15. *Have procedures available that leave parties in control over the outcome and the resolution process. Apply criteria to determine the most constructive approach in each particular case (the certainty or confidence one has that one will win, how high the stakes are, the level of power imbalance, and the legal nature of conflict).* 16. *Create a strong relationship, for example, by enctheaging concern for the other.* 17. *Enctheage constructive conflict management. Cultivate a level of concern for each other, facilitate trust, and create group feeling by engaging in regular team building activities.* 18. *Keep a balance of power between the parties.* 19. *Create awareness of the costs of escalation.* 20. *Exchange information about how a conflict is experienced to anticipate future reactions to it.* 21. *Let people handle conflict who have a positive perception of conflicts and a positive attitude in general.* 22. *Build in de-escalation techniques in conflict resolution, such as moving the conflict resolution to another level within the organization or agreeing on overarching goals.* 23. *Incorporate adequate benchmarks into contracts, such as timeframes for completion and well-defined partner contributions to reveal failure to meet objectives more easily.*

	24. *Be specific in contracts about what to expect of each other in terms of tasks and behavior and agree about penalties in case of nonperformance and compensation in case of breach.* 25. *Estimate the likelihood of conflict, discuss how parties will react to behavior which may cause conflict, and share information about conflict behavior.* 26. *Identify trade rules and translate and integrate into the contract the applicable rules, business practice, and customs.* 27. *Let reputation supplement legal contract terms as a conflict prevention mechanism to enforce legal and non-legal promises, such as payment, flexibility, and willingness to renegotiate a contract in case of changed circumstances.* 28. *Make sure rules and arbitral awards are known and understood in order to enhance trust and prevent misunderstandings and conflicts.* 29. *Anticipate crowding out effects in deciding if legal rules and intervention by a cthet apply, or if parties will instead rely on private legal systems and reputation.* 30. *Use third parties and have incentives available to stimulate efficient handling of potential conflict situations and keep costs low.* 31. *Make proceedings swift and inexpensive to create a preventive effect on conflict resolution.* 32. *Organize the third party interventions starting inexpensively and make expensive procedures a final option.* 33. *Keep bargaining costs low to prevent chilling effects of third party procedures such as arbitration.* 34. *Use objective selection mechanisms of third parties to overcome problems of neutrality and bias.* 35. *Take the general framework the legal system provides into account, but define how to proceed in case of more detailed conflicts in the contract.* 36. *Pick conflict resolution mechanisms carefully by having a specific conflict resolution procedure in place that allows tailor-made approaches to conflicts instead of relying exclusively on contract terms concerning the substance to resolve complex conflict.* 37. *Be specific in the contract about how to deal with well-known or high impact conflict issues so that*

	cthet interference is not necessary. 38. *Decide in individual situations what is the most constructive way of conflict management based on an objective analysis of the case.* 39. *Agree on the situations in which legal rules will apply and which will be governed by customs, and involve lawyers on both sides in the decision making process.* 40. *Use the instruments procedural law provides to enctheage the other party to live up to their duties.* 41. *Beware the potentially negative effects of strategic use of the legal system.* 42. *Use alternative means of conflict resolution when possible, as they are more flexible and better suited to the wishes of parties, and use legal proceedings when the framework they provide and their formalities are needed.* 43. *Opt for procedures that facilitate settlement and allow for tailor-made solutions.* 44. *Use and develop conflict regulation mechanisms within an organization.* 45. *Align an organization's conflict management system with its goals in selecting people, training, and creating the organizational structure.* 46. *Enctheage constructive conflict approaches and use of established procedures by making them easily accessible and known to everybody.* 47. *Use steps of conflict system design when developing a dispute resolution system:* a. *Conduct a conflict and stakeholder assessment* b. *Ascertain system objectives and establish priorities among them.* c. *Develop the new system, working in concert with relevant stakeholders.* d. *Implement the system, building in sufficient education and training along the way.* e. *Evaluate the system and modify in accordance with the changing needs and objectives of the organizational/institutional stakeholders.* 48. *Integrate the principles of conflict resolution system design into the conflict resolution system:* a. *Facilitate interest-based negotiations.* b. *Build in "loopbacks."*

	c. *Provide for consultation and feedback.* d. *Arrange procedures in a sequence from low cost to high.* e. *Provide knowledge, skills, and motivation.* f. *Prevent disputes and make interventions easily accessible.* g. *Involve the stakeholders in the design.* h. *Give parties control.* i. *Integrate the different conflict resolution mechanisms at all levels.*
Mechanism for creating a cooperative atmosphere	*NEGOTIATION PROCESS* 1. *Use the integrative negotiation method.* 2. *Let management set the example in cooperative negotiation behavior.* 3. *Frame negotiations positively, and maintain positive views of relationships.* 4. *Anticipate and discuss differences in negotiation styles between parties varying on a scale of cooperativeness.* 5. *Select team members based on their ability to adopt a problem-solving style, and use information on motivations and frames to anticipate their most likely negotiation style.* 6. *Take measures to limit negative influences that superiors or peers from the organization may engender following the negotiation process, and ensure that negotiators have sufficient authority and independence.* 7. *Anticipate the influence parties have on each others' negotiation behavior and motivations.* 8. *Enctheage the powerful party to set the tone with cooperative behavior, and make clear the expectation that the other party will reciprocate.* 9. *Try to give each other certainty about a cooperative reaction; for instance, agreeing on reciprocity and sharing aspects of negotiation agendas.* 10. *Take time to build trust, both before and during negotiations, and create a trustworthy partner*

	reputation. *11. Build trust gradually by first giving it in small proportions and building it up overtime.* *12. Facilitate trust by proving trustworthiness; for example, by being predictable, reliable, and consistent in behavior.* *13. Anticipate that in the use of lawyers' services or legal procedures, the legal system promotes a distributive approach and most lawyers tend to use a distributive negotiation method when drafting legal documents.* *14. Make sure lawyers or third parties support and are experienced in using both integrative and distributive negotiation methods.* *RELATIONSHIP DEVELOPMENT* *15. Be transparent about the tender procedure and the criteria used in order to build trust. Provide clear selection criteria, clear tendering procedure, facilitate open information exchange, explain, and inform. Use the notion of good faith as a guiding principle in pre-contractual negotiations, but elaborate on the customary meaning of it to prevent misunderstandings later on.* *16. Share information with regard to the subject of the contract.* *17. Be clear about intentions and willingness to enter into a contractual relationship and agree on penalties or other mechanisms to apply if negotiations are broken off without sufficient reason.* *18. Be aware that a strong imbalance in power may frustrate a balanced relationship and be a disincentive for cooperative behavior.* *19. Be aware that the framework for a relationship, particularly the contract, may reflect and amplify unwanted power differences.*

4 CHECKLIST FOR STRENGTHENING A SUCCESSFUL COLLABORATION PROCESS THROUGHOUT THE CONSTRUCTION PROCESS

Tender stage	
Design of the tender process	*NEGOTIATION PROCESS* *22. Anticipate that by interacting, negotiating parties influence each others' negotiation behavior and motivations.* *23. Let the more powerful party, the initiator, set a cooperative tone by acting cooperatively, and let him make clear that he expects the other party to reciprocate.*
Call for tender	*NEGOTIATION PROCESS* *1. Enctheage cooperative negotiation behavior with the prospect of future interaction.* *RELATIONSHIP DEVELOPMENT* *2. Let the more powerful party, the initiator, set the tone for the relationship with cooperative strategies that will inspire the less powerful party to react in the same way.* *3. Let the initiator be transparent about the tender procedure in order to build trust; for example, provide clear selection criteria, a clear tender procedure, enctheage open information exchange, and be willing to explain and inform.* *4. Describe the guidelines and principles the initiator wants as central guidelines in the relationship.*
Information exchange	*NEGOTIATION PROCESS* *1. Agree on the use of the integrative negotiation method during the first interaction.*

meetings	2. *Start to build trust gradually from the first interaction on, by first giving it in small proportions and slowly building it up over time.* 3. *Facilitate trust by proving trustworthiness; for example by being predictable, reliable and consistent in behavior.* *RELATIONSHIP DEVELOPMENT* 4. *Initiate an integrative negotiation approach to start the relationship, and protect the less powerful party from competitive responses; for example, allow him the initiative in choosing a response.* 5. *Develop ways to break through negative effects of power differences; create avenues for evaluation of the collaboration process and cooperative behavior by parties themselves or a neutral third party.* 6. *Share information with regard to the subject of the relationship (the project).* 7. *Be clear about intentions and willingness to enter into a contractual relationship and agree on penalties or other mechanisms to apply if negotiations are broken off without sufficient reason.*
Bid selection	*NEGOTIATION PROCESS* 1. *Try to get insight into the other parties' (contractors) motivations, as they indicate the tendency to demonstrate a cooperative negotiation approach.* 2. *Make reputation a selection tool for future projects or for additional parts of a current project.* *RELATIONSHIP DEVELOPMENT* 3. *Determine what they (contractors) expect from the relationship and how they define a relationship that "works."* 4. *Determine whether there is enough of an overlap in desires between parties and a chance for profitable future encounters before entering into a relationship.*

	5. *Determine if and how both parties' long-term self-interest is served in the relationship before committing to it.*
Contract negotiations	*NEGOTIATION PROCESS* 1. *Take time to build trust, both before and during negotiations, and create the reputation of a trustworthy negotiation partner.* 2. *Frame subjects of negotiations in a positive way, and maintain a positive view of the relationship between the negotiators.* 3. *Involve people in negotiations that are motivated by working toward mutual interests and who have a pro-social orientation.* 4. *Agree to invest in the relationship, and specify how these investments will be made.* 5. *Establish that integrative negotiation is the generally used negotiation method during ongoing negotiations between negotiation partners.* 6. *Consider the use of the distributive bargaining methods when discussing issues of minor interest to the parties, in terms of costs and the importance of the issue at hand.* 7. *Be explicit about and agree on the legal rules that apply to the process of contract formation, either mandatory rules or rules to which both parties agree.* 8. *Agree on the norms that are applicable during the negotiation process.* 9. *Determine whether the principle of good faith applies in contract negotiations and formation and what its consequences are, and, if not mandatory, discuss applying it.* 10. *Use the notion of good faith as a guiding principle in (pre-)contractual negotiations, but elaborate on the customary meaning of it to prevent misunderstandings later on.* 11. *Be aware that not communicating information in either the negotiation or formation phase can have legal implications. Duties to warn or inform may be invoked later if a party does not live up to its side of the bargain.*

	12. *Agree on a process of contracting that is tailored to the relationship and be specific about each step.* *Decision making:* 13. *Negotiate toward optimal outcomes based on relevant information while taking into account all possible options and drawing on accurate inferences.* 14. *Follow rational decision making steps (define the problem, find criteria, give criteria a value, identify alternatives, test each alternative against the criteria, calculate the optimal decision, reach a decision and act on it).* 15. *Work toward negotiation outcomes that optimally satisfy both parties' preferences in the light of the ongoing negotiation process.* 16. *Strive for a negotiation outcome in which further reallocation of restheces can no longer lead to an improvement for one without leaving the other worse off (the Pareto optimum).* 17. *Strive for negotiation outcomes that are mutually beneficial.* 18. *Identify the legal norms that are applicable in cthet and use them as boundaries within which negotiations take place and criteria that give indications for the outcome of decisions (in other words: use the shadow of the law).* 19. *Agree upon and draft "legal rules for the cooperative negotiation" in order to tailor the negotiation process to the parties' wishes within the margins set by the legal system.* 20. *Anticipate that the legal system promotes a distributive approach and most lawyers tend to use a distributive negotiation method when involving lawyers in negotiations or starting legal procedures.* 21. *Make sure to know which negotiation method lawyers or third parties support.* 22. *Involve lawyers who support and are experienced in using both integrative and distributive negotiation methods.* 23. *Prevent suboptimal negotiation outcomes caused by cognitive biases, by checking whether the biases identified in literature influence the negotiations, and, if so, correct them.* 24. *Identify and correct for personal biases, others' biases, and mutual decision making biases by*

	evaluating decisions before finalizing them. Ways to do so are by: *a. Scheduling "cool-off" periods to create space to ponder decisions before they become final.* *b. Having parties trade each other's perspectives, or involving a neutral third party in the decision making process to identify irrationality. Raise the stakes in a negotiation situation to enctheage decision makers to reassess their positions, reflect on their positions, or collect further information.* *c. Increase awareness of biases by educating people about the phenomenon.* *25. Determine whether negotiators' representations match, and, if not, try to reframe and create a mutual view and interpretation of issues subject to negotiations.* *26. Exchange views to check whether the representation on which decisions are based is correct and complete before making decisions final.* *27. Assess and agree how to deal with irrationalities and agree who can best manage the consequences and costs of a biased decision. For instance, a responsible problem solver may be delegated to limit the costs of an irrational decision.* *RELATIONSHIP DEVELOPMENT* *28. Discuss what each party expects from the relationship and how they define a relationship that "works."* *29. Agree on and describe the guidelines and principles both parties want as central guidelines in the relationship.* *30. Use the large bandwidth the legal system provides when building a relationship, as it enables parties to establish a framework which they find optimally contributes to a cooperative relationship.* *31. Be aware that a strong imbalance in power may frustrate a balanced relationship and be a disincentive for cooperative behavior.* *32. Grant, as a countermeasure to potential power imbalance, as much equal access to information and expertise relevant to the project as possible to both parties.*

	FORESEEING CONFLICT *33. Collaborate on identifying typical stheces of legal conflict (such as duties to inform not lived up to, reasonable expectations not met, or cases of force majeure).* *34. Classify these conflicts. (Is it a violation of a right or failure of a duty to perform? Is it covered by contract or law? It is external or internal? Is it a modification to adjust to changed circumstances?)* *DEALING WITH CONFLICT* *35. Distinguish between the options in conflict management, such as the level on which to deal with conflict, and discuss this early on during the collaboration process).* *36. Estimate the likelihood of conflict; discuss how parties will react to behavior which may cause conflict; and share information about conflict behavior.* *37. Develop amicable ways of solving disputes.*
Drafting of the contract	*NEGOTIATION PROCESS* *1. Agree on the norms that are applicable to negotiations that take place during the project and make them part of the agreement.* *2. Agree upon and draft "legal rules for cooperative negotiation" in order to tailor the negotiation process to the parties' wishes within the margins set by the legal system.* *3. Create mechanisms that make cooperative negotiation behavior enforceable; for example, agree that mutual benefit is the goal, and that each party's behavior toward this end will be evaluated.* *RELATIONSHIP DEVELOPMENT* *4. Let the contract contribute to a cooperative relationship by providing a reflection of the rights and obligations of parties; by providing a detailed set of rules and procedures for resolving disputes; and*

	by providing a legal framework within which future negotiations over the terms of trade will take place. 5. *Use the contract as a "blueprint for exchange" and a means to plan the collaboration, to set partner expectations, and, consequently, to reduce misunderstandings and costly missteps.* 6. *Include elements of collaboration in a contract that help clarify parties' intentions even if they are not necessarily legally enforceable.* 7. *Define in the contract the precise meaning parties attach to abstract concepts such as rules of respect, fairness, reciprocity and other concepts they want to be of guidance in their relationship.* 8. *Facilitate mechanisms in a relationship that allow both parties to reward the other's cooperative behavior and punish defective behavior.* 9. *Be aware that the framework for a relationship, particularly the contract, may reflect and amplify unwanted power differences.* 10. *Consider integrating social norms into the different phases of the relationship-building process, as they may replace or complement contract terms to prevent problems particularly for parts of the agreement that are hard to enforce legally.* 11. *Ascertain whether social norms are at work and are a credible threat, and if contractual remedies might trigger crowding out effects.* 12. *Set clear expectations for behavior and provide a means to identify and curtail opportunistic behavior.* 13. *Consider possibilities for non-legal punishment such as the use of reciprocal fairness, and reputation mechanisms.* 14. *Agree that the contract will be regularly renegotiated or will be split into smaller contracts to enable the parties to build trust and cut back on protective contract terms when trust is built between parties.* 15. *Use protective mechanisms in a contract only as a temporary substitute for trust, and after parties have build it up, cut back on protective mechanisms.*

	16. *Learn from experience with the other party how to replace standard contracts with a custom made contract.* 17. *Use the freedom that the legal system provides as to the content of the contract to tailor it to the relationship in the manner parties think best enables a successful collaboration process.* 18. *Discuss and consciously choose the legal regime that applies to the contract, as this choice will impact the way in which cthets interpret the contract.* 19. *Be specific on contract terms, and do not use unclear language; define ambiguous terms; do not leave anything out; use terms consistently; and fully account for any sensitive issues (unless parties want default rules to apply).* 20. *Agree on criteria for contract interpretation rules; refer to them in the contract; and prevent ambiguity by being specific.* 21. *Consider the different kinds of approaches in contracting complete, incomplete, and relational contracting.* *Complete contracting approach:* 22. *Determine for which part of the rules governing their relationship the parties want to strive for completeness; where incompleteness best supports the relationship; and where elements from relational contracts may be incorporated (complete contracts).* 23. *Determine for which parts of the contract the certainty of contractual completeness is worth striving for and realistic. Acknowledge the indefiniteness of certain parts of a relationship.* 24. *Be realistic about completeness; do not try to aim for completeness where it concerns uncertain future conditions that may arise in the cthese of the relationship, and do not try to characterize complex adaptations.* 25. *Weigh carefully the preferred level of certainty against the costs of negotiation and enforcement, as the cost of negotiating and enforcing a wide variety of terms for particular situations increases as their probability decreases.*

	26. Realize that some variables of a relationship included in a contract may be very hard to verify by cthets, and, therefore, are hard to enforce by law. *Incomplete contracting approach:* *27. Weigh the positive effects of lowering transaction costs and signaling trust against a possible decrease in certainty (incomplete contracts).* *28. Determine and agree whether investments in the relationship and the will to achieve mutual benefits may function as mechanisms that enctheage behavior in the best interest of the relationship.* *29. Anticipate interpretation differences inherent in incompleteness, which may lead to disputes during the relationship.* *30. Avoid including terms in the contract that leave room for competitive bargaining and prevent ambiguity or insufficiently defined contingencies in contracts.* *31. Fill in complex details of incomplete contracts after parties reach agreement by using a "phasing strategy" after the initial agreement.* *Relational contracting approach:* *32. Consider establishing a process through which future terms of trade will be determined, thus establishing a set of basic rules governing the ongoing relationship contracting.* *33. Explore whether parties trust informal mechanisms for enforcement, in particular the relationship, and evaluate whether or not the relationship is enough of an incentive.* *FORESEEING CONFLICT* *34. Anticipate the competitive effects of contracts and the involvement of traditionally trained lawyers.* *35. Anticipate the escalation process that may result from the interaction between lawyers.* *36. Involve lawyers in analysis of the real problem at an early stage. Keep the threshold low, and try to prevent a conflict from becoming a legal problem.*

	37. Anticipate the psychological processes that stimulate clients' and lawyers' competitive behavior. *DEALING WITH CONFLICT* *38. Incorporate adequate benchmarks into contracts such as timeframes for completion and well-defined partner contributions to reveal failure to meet objectives more easily.* *39. Be specific in contracts about what to expect of each other in terms of tasks and behavior, and agree about penalties in case of nonperformance and compensation in case of breach.* *40. Identify trade rules and translate and integrate into the contract the applicable rules, business practice, and customs.* *41. Let reputations supplement legal contract terms as a conflict prevention mechanism to enforce legal and non-legal promises, such as payment, flexibility, and willingness to renegotiate a contract in case of changed circumstances.*

Realization stage	
Preparing the site and setting up and maintaining the project organization	*NEGOTIATION PROCESS* *1. Involve people who are motivated by working toward mutual interests and who have a pro-social orientation.* *2. Stimulate cooperative negotiation behavior by building team members' negotiation skills; have management set the right cooperative example, and hire employees with a pro-social orientation.* *3. Build a history of cooperative interaction, and create feelings of unity and friendship.* *4. Motivate cooperative negotiation behavior with financial incentives or instructions to cooperate.* *5. Discuss each others' views of negotiation situations regularly. For instance, share negotiation*

	beliefs, perceptions of one another, and concepts of a successful business relationship). 6. *Anticipate and discuss differences in negotiation styles between people who need to work together and prevent this from negatively influencing the collaboration process.* 7. *Select team members based on their ability to adopt a problem-solving style and use information on motivation and frames to anticipate their most likely negotiation style.* 8. *Take measures to limit negative influences that superiors or peers from the organization may engender following the negotiation process, and ensure that negotiators have sufficient authority and independence. Agree on face-to-face contact as the preferred communication channel.* 9. *Only choose other ways of communication when face-to-face negotiations are not effective or possible, and when there is already a relationship established and the chance of misunderstanding and conflict has decreased.* 10. *Evaluate the communication process and communication channels regularly, and modify them as necessary.* 11. *Assign capable communicators to the project team, and provide communication training to maximize clear communication.* 12. *Use existing normative standards of cooperative behavior or market conventions as a social norm in interactions.* 13. *Make reputation an incentive by punishing competitive negotiation behavior and rewarding cooperative behavior. For instance, a contractor may gain extra points in tender procedures for having the reputation of being a cooperative negotiator.* 14. *Make negative and positive behavior transparent and known outside a project in order to allow the reputation mechanism to work.* 15. *Discuss strategies as they influence the relationship, and make the responses people will give to certain strategies.* 16. *Reduce competitive strategies by discussing preferred strategies beforehand and downplaying factors that may enctheage this such as information asymmetry between parties.*

	17. Try to create a balance of power between the representatives of parties that have to cooperate. *18. Agree on the tit-for-tat strategy (react to a cooperative strategy cooperatively, and to a non-cooperative strategy with a similar response) to set the right cooperative tone and to correct uncooperative behavior (defection).* *DEALING WITH CONFLICT* *19. Enctheage constructive relationships and constructive conflict management. Decrease the chance of dysfunctional conflict by cultivating a level of concern for the other. Facilitate trust and create group feelings by engaging in regular team building activities.*
Constructing the work and dealing with unforeseen events	*NEGOTIATION PROCESS* *1. During negotiations, evaluate whether the parties' representation of a situation is blurred as a result of heuristics, and if so, try to correct those images.* *2. To prevent cognitive biases:* *a. Explore the aforementioned biases during negotiations and take time to correct them.* *b. Identify and evaluate problems; discuss issues and party preferences during negotiations.* *3. Determine if representations match, and, if not, try to reframe and create a mutual view and interpretation of negotiation issues.* *4. Exchange views to check if the representation on which decisions are based is correct and complete before making decisions final. For instance, introduce a cool-off period in which parties may reflect on their positions or collect further information.* *5. Frame negotiations positively, and maintain positive views of relationships.* *6. Anticipate the influence parties have on each others' negotiation behavior and motivations.* *7. Enctheage the powerful party to set the tone with cooperative behavior, and make clear the expectation that the other party will reciprocate.*

	8. *Try to give each other certainty about a cooperative reaction; for instance, agree on reciprocity and sharing aspects of negotiation agendas.* 9. *Negotiate toward optimal outcomes based on relevant information while taking into account all possible options and drawing on accurate inferences.* 10. *Follow rational decision making steps (define the problem, find criteria, give criteria a value, identify alternatives, test each alternative against the criteria, calculate the optimal decision, reach a decision, and act on it).* 11. *Work toward negotiation outcomes that optimally satisfy both parties' preferences in light of the ongoing negotiation process.* 12. *Strive for a negotiation outcome in which further reallocation of restheces can no longer lead to an improvement for one without leaving the other worse off (the Pareto optimum).* 13. *Strive for negotiation outcomes that are mutually beneficial.* *CONFLICT IDENTIFICATION* 14. *Anticipate breach without compensation if there are obstacles for enforcement of damages such as information asymmetry or shortage and high enforcement costs.* 15. *Discuss together the situations in which breach is feared and estimates of the chance of breach.* 16. *Determine if the disagreement may be reframed as a legally valid claim.* 17. *Distinguish between the disagreement as experienced by parties and the legally valid claim.* 18. *Anticipate that legal translation of a problem may enctheage competition, and makes a win-lose outcome probable.* 19. *Anticipate that not every problem between parties can be translated into a legal conflict adequately, and that some problems need to be canalized in other ways.* 20. *Anticipate the differences in interpretation of complex contract terms.* 21. *Anticipate that using the legal system may aggravate conflict and facilitate a competitive approach to conflict.*

Renegotiation of the contract	*NEGOTIATION PROCESS* 1. *Agree that the contract will be regularly renegotiated or will be split into smaller contracts to enable the parties to build trust and cut back on protective contract terms when trust is built up between parties.* *[See checklist contract negotiation process, and unforeseen circumstances]*
Project delivery and dismantling of the project organization	*[see checklist contract negotiation process and project organization]*

	Maintenance stage
Maintenance and repairs	*[See recommendations contract negotiation process and drafting of contract]*

	All stages
Foreseeing conflict and dealing with conflict	*FORESEEING CONFLICT* 1. *Agree to identify stheces of conflict before the start of a project to predict and to anticipate future conflict and diagnose existing conflict.* 2. *Make a checklist together to scan the project and identify potential conflict. For instance, use the categories relational conflict, task conflict, and (within task conflicts) differences of opinion or divergences of interest.* 3. *Distinguish between types of conflict and categorize conflicts based on their cause [see checklist].* 4. *Identify (differences in) project members' perceptions of project and individual goals to predict conflicts.* 5. *Identify mechanisms which may motivate cooperative or competitive behavior in situations with conflict potential, such as instructions, rewards and punishment systems, norms, or a charter.* 6. *Anticipate and recognize conflict dynamics, in which feelings of fear, anger, distrust, or resentment lead to unfriendly reactions which increase the intensity of conflict.* 7. *Identify the intensity of a conflict by using Glasl's 9-step escalation model.* 8. *Weigh the possible positive effects of conflict (better decision making, more creativity) against the potential negative effects of conflict (a negative working atmosphere, decline in satisfaction and output).* *To find a constructive level of conflict:* a. *Discuss before and during the project the extent to which differences of opinion are likely to have negative effects and to what extent they may be beneficial. Base the discussion on criteria such as the chance and effects of groupthink, a lack of creativity, sub-optimal decisions, relational conflict, and the presence of a cooperative atmosphere.* b. *Take measures to prevent silencing of conflicts and failing to express differences in values and preferences during the project.*

	c. *Diagnose conflicts when they arise and isolate potentially fruitful differences of opinion.* d. *Enctheage and canalize differences of opinion if they stimulate creativity or information processing, curtail problem solving, or lead to better decisions.* 9. *Identify situations in which both parties trying to obtain a better deal in the short run may increase the likelihood of an impasse that will produce conflict in the long run.* 10. *Anticipate irrationality in decision making which may cause conflict, such as the tendency to escalate, ignorance of the perspectives of the other party, and reactive devaluation.* 11. *Anticipate information asymmetry, differences in the estimation of risks, and different views of uncertainty, interests, and roles.* 12. *Anticipate the use of opportunistic strategies that may mislead the other party and increase the chance of conflict, such as withholding information or over-asking.* *DEALING WITH CONFLICT* 2. *Choose together the preferred level (self, together, with help of lawyers, or neutral) on which to deal with conflict.* 3. *Discuss and agree on a general approach and on approaches in particular conflict situations.* 4. *Choose problem-solving as the general approach in conflict resolution.* 5. *Agree on particular conflict resolution styles for different conflict situations based on the kind of conflict.* 6. *Make a trade-off between what is optimal for the collaboration process and the importance of the issue.* 7. *Avoid relational conflict and problem solve in task conflict, except in situations of pure difference of opinion where compromising or even forcing may be beneficial.* 8. *Agree upon the third party conflict management processes for a project.* 9. *Use criteria (intervention, context, level of control) to determine the nature of the process in a specific conflict.*

	10. *Use criteria to choose between processes that have the character of mediation, arbitration or a hybrid form. Do people involved need to cooperate in the future? How intense is the conflict (moderate or severe)? Are legal norms of high importance, and is there time pressure?* 11. *Determine what is necessary in a conflict based on the aforementioned criteria. Determine the kind of solution the parties want, the role they want the third party to play, the kind of procedure that best facilitates this role, the expertise and skills the third party needs to fulfill this role, and if it should be an internal or external (neutral) party.* 12. *Let the first reaction to conflict be a cooperative one, as first actions tend to be decisive for how a conflict management interaction evolves.* 13. *Align available conflict resolution mechanisms to general preferences about outcome, such as truth finding in differences of opinion and compromises or intergrative solution in conflicts of opposing interests.* 14. *Take people's procedural preferences into account when agreeing on the third party procedures offered, and choosing a procedure for a particular conflict. For example, organize them from maximum influence to decreasing control.* 15. *Have procedures available that leave parties in control over the outcome and the resolution process. Apply criteria to determine the most constructive approach in each particular case: the certainty or confidence one has that one will win, how high the stakes are, the level of power imbalance, and the legal nature of conflict.* 16. *Create awareness of the costs of escalation.* 17. *Exchange information about how a conflict is experienced to anticipate future reactions to it.* 18. *Let people handle conflict who have a positive perception of conflicts and a positive attitude in general.* 19. *Build in de-escalation techniques in conflict resolution, such as moving the conflict resolution to another level within the organization or agreeing on overarching goals.* 20. *Use and develop the conflict regulation mechanisms within an organization.* 21. *Align an organization's conflict management system with its goals in selecting people, training, and*

	creating the organizational structure. 22. *Enctheage constructive conflict approaches and the use of established procedures by making them known to everybody and easily accessible.* *Integrate the principles of conflict resolution system design into the conflict resolution system.* *a. Facilitate interest-based negotiations.* *b. Build in "loopbacks"* *c. Provide for consultation and feedback.* *d. Arrange procedures in a sequence from low cost to high.* *e. Provide knowledge, skills, and motivation.* *f. Prevent disputes and make interventions easily accessible.* *g. Involve the stakeholders in the design.* *h. Give parties control.* *i. Integrate the different conflict resolution mechanisms at all levels.* 23. *Use third parties and have incentives available to stimulate efficient handling of potential conflict situations and keep costs low.* 24. *Make proceedings swift and inexpensive to create a preventive effect on conflict resolution.* 25. *Organize the third party interventions starting inexpensively and make expensive procedures a final option.* 26. *Keep bargaining costs low to prevent chilling effects of third party procedures such as arbitration.* 27. *Use objective selection mechanisms of third parties to overcome problems of neutrality and bias.* 28. *Take the general framework the legal system provides into account, but define how to proceed in case of conflicts in more detail in the contract.* 29. *Pick conflict resolution mechanisms carefully by having a specific conflict resolution procedure in place that allows tailor-made approaches to conflicts instead of relying exclusively on contract terms concerning the substance to resolve complex conflict.*

	30. *Be specific in the contract about how to deal with well-known or high impact conflict issues so that cthet interference is not necessary.* 31. *Decide in individual situations what is the most constructive way of conflict management based on an objective analysis of the case.* 32. *Agree on the situations in which legal rules will apply and which will be governed by customs, and involve lawyers on both sides in the decision making process.* 33. *Use the instruments procedural law provides to enctheage the other party to live up to their duties.* 34. *Beware the potentially negative effects of strategic use of the legal system.* 35. *Make sure that lawyers or third parties support and are experienced in using both integrative and distributive negotiation methods.* 36. *Use alternative means of conflict resolution when possible, as they are more flexible and better suited to the wishes of parties, and use legal proceedings when the framework they provide and their formalities are needed.* 37. *Opt for procedures that facilitate settlement and allow for tailor-made solutions.*

CHAPTER 5

V CONCLUSIONS

1 General conclusions of the study

Infrastructure projects often perform poorly. Empirical studies show that worldwide most of these projects do not perform well in terms of the criteria of construction cost, construction time, and quality of the end product.

In the first part of the underlying study the purpose was to draw on literature on partnering and alliancing to identify project success variables. The second purpose was to identify the main causes of success or failure of relational contracting models. From theory and empirical findings we have drawn factors that contribute and complicate achieving project success (meeting or beating the project goals). In the review of construction management literature, we found support that the collaboration process between client and contractor is instrumental to project performance. We also distilled from literature the characteristics of infrastructure projects that make it so hard to instill and maintain a collaboration process that allows for project success. First, we found support that the adversarial nature of the sector and the complexity of the construction process make it difficult to establish relationships that allow for a smooth collaboration process. Second, we observed that disputes between clients and contractors are a major reason why they fail to achieve project goals. Conflicts tend to arise frequently in infrastructure projects as the environment is uncertain and subject to unanticipated events.

We continued with an analysis of the relational contracting models partnering, alliancing, and the instrument dispute boards. These models and instruments are developed to improve collaboration between client and contractors. The overview of evaluations of the performance of these models in practice shows mixed results. We found that on a number of occasions partnering, alliancing, and dispute boards have brought substantial benefits; in others, they were less successful. We concluded that the main problem with the performance of these models is the fragile commitment of the parties to the underlying collaboration principles. Without management support and/or clear legal support for these models, it is hard to

implement and maintain them on a project level. The proposition based on this was that in order to achieve project success through better collaboration, the parties need to develop adequate governance structures to instill and maintain a more successful collaboration process.

In the second part, the purpose was to make recommendations based on theory and empirical findings from social psychological, economic and legal studies. For that purpose, we identified factors in infrastructure projects that facilitate or threaten a successful collaboration process. In the review of literature on cooperation, we first subdivided the general collaboration process into the different sub-processes that take place during infrastructure development and that demand collaboration between client and contractors: negotiations, relationship development, foreseeing conflict, and dealing with conflict. After that, we distilled the factors from literature that positively or negatively influence these fthe collaboration sub-processes. Subsequently, we derived from theory and empirical studies ways to positively influence these factors in order to optimize the collaboration process. We formulated these findings as recommendations (or propositions) for successful collaboration.

In the third part of the study, the purpose was to explore how the recommendations may be implemented in practice. First, we showed how these recommendations might contribute to project success, and categorized them by "project performance mechanism" (mechanisms used in practice to influence project performance). We distinguished recommendations by their potential to either contribute to mechanisms that enctheage people to commit to project goals; to organize effective interaction and communication; to organize monitoring and feedback; to prevent bureaucracy and foster adequate decision making processes; to identify conflict; to deal with conflict, and to decrease the negative effects of adversarial tendering. Second, we distinguished the different stages in the tender, realization, and maintenance stage of the construction process. Subsequently, we categorized the recommendations based on their relevance in the stages of infrastructure development. Third, we presented the governance structures that seem most suitable to implement the recommendations at a project level.

Finally, we offered the result of these categorizations in two academic checklists. These lists are a first step in making a practical

working tool to instill and maintain successful collaboration in practice. In the first checklist we suggest *where* in the collaboration process which recommendations may be used. The second list gives an overview of the *mechanisms* that we found that contributed to project success and the recommendations that may contribute to developing each of these mechanisms.

2 Theoretical and practical implications

The study and this report may have the following implications for theory and practice.

The theoretical contribution of the first part of the study is that we link existing theory and findings on infrastructure development, project performance, and relational contracting in construction. By this approach we show some important limitations of current relational contracting models, we pinpoint the main obstacles for continuing commitment of parties to the models underlying principles (Chapter 3). In the review we clearly expose the obstacles for a successful application of these models in hard-bid adversarial environments such as the construction industry. With this approach we also show the conditions that should be met for these models to be successful.

Subsequently, in Part II, we offer the ingredients for a systematic approach for making collaboration more likely in infrastructure projects. We do so by identifying from literature key factors in collaboration and by deriving a set of interconnected interventions.

We also present a distinction of the general collaboration process in infrastructure projects in the processes of negotiations, relationship building, foreseeing conflict and dealing with conflict. Furthermore we distill a number of stages within relationship development in infrastructure project from literature, and make a distinction in activities throughout projects that particularly affect the collaboration process.

Moreover, we show in the second part of the study the added value of taking an interdisciplinary approach compared to studying collaboration from individual perspectives. We integrated in the study findings from social psychology, economics, and law to develop the recommendations. The contribution of the various perspectives that generally operate in a rather isolated manner provides a better

understanding of how collaboration evolves. This approach also allowed us to pinpoint an entire set of interconnected interventions that together make collaboration more likely. This may be in the setting of infrastructure projects and beyond. The set of recommendations categorized in the charts in Chapter 9 is a clear basis on which more in-depth research into collaboration in various relationships can be built.

First, we illustrate for each sub-collaboration process, that the disciplines together provide a more complete image of what affects behavior of persons (human agents) and entities (their principals). For instance, we show peoples' negotiation behavior is influenced by their motives to enter into a relationship, as well as the financial incentives they and their principals experience (for instance the ones arising from the contract), and the legal rules of contract law applicable to the arrangements between the entities (clients and contractors).

Secondly, the approach extends the body of negotiation theory and conflict resolution theory to the arena of infrastructure projects. Its complexity, adversarial culture and conflict sensitivity make it an important field from a negotiation theory and conflict resolution theory perspective.

Third, the analysis clearly illustrates the different, but complementary types of insights that can be drawn from the three disciplines (both for parties (clients and contractors) as entities and for human actors (the representatives of the entities). Social psychology discusses and provides insights into factors such as beliefs and motivation that typically affect collaboration behavior of human actors. Economics addresses factors and provides insight into factors that both influence collaborative behavior of human actors and entities. Finally, legal literature we took into account mainly addresses factors that affect collaboration behavior of the entities. The analysis of these types of factors influencing collaboration processes indicates lines along which they may be distinguished. First, the factors we studied under the social psychology perspective provided mainly cover:

1) Factors that influence the effect of choices in the approaches that people make during their collaboration process with others such as the choice of negotiation method, of negotiation or conflict management style, or of level of conflict management).

2) Factors that have to do with human characteristics such as peoples' perceptions of the negotiation situation or the relationship or motivation.
3) Factors that influence personal variables such as communication and creating a bond).

From the economic perspective we have drawn:

1) Factors with the character of external or internal rules or norms (social norms, trust, reputation) that influence parties and their representatives' behavior.
2) Factors that may function as guidelines which their representatives may choose to follow, as it may lead them toward successful collaboration, optimal negotiation outcomes, relationship, or conflict management such as rational choice or decision making theory).

Finally, from the legal perspective we draw factors such as:

1) The legal rules that limit parties' behavior as entities and influence collaboration either positively or negatively (rules of contract law).
2) Determinants the parties may use to guide their behavior such as good faith or particular contract terms that oblige parties to behave in a certain way.

The study also gives input to legal theory on the role of law in collaboration. The review of the legal literature, delivered only a limited amount of factors that positively contribute to collaboration as we defined it, and a number of factors that more than likely foster competition. These findings give support to the idea in ADR literature that legal governance structures such as contracts and regulations have a limited role in advocating collaboration and, therefore, in correcting non-cooperative behavior and replacing them by cooperative actions). This seems in line with the practice in some countries at construction projects to use contracts only when conflicts have arisen, and to involve lawyers only in the last stage of drafting the procurement rules, the contract, and conflict management.

The results of the study also give insight into the legal role in governance structures in which lawyers act as "influencers" of the collaboration process. The study indicates the importance of the type and design of legal governance structures. The law provides the parties freedom in choices of design of these structures that govern

their relationship. The parties choose the extent to which tender regulations and their contracts facilitate cooperative or rather competitive behavior. By consciously choosing the kind of legal professionals they involve, the parties may also influence the role legal specialists play in a collaboration process.

A number of practical implications may be drawn from the study as well. The academic checklists may already provide useful guidelines to practice. They may be taken into account by decision makers in infrastructure projects. The findings may also be of value in other situations in which parties need to design governance structures for projects with similar characteristics (projects that demand intense and effective collaboration for a period of time for achieving project goals). However, further empirical study will be necessary to test how the recommendations drawn from theory actually affect the collaboration process between client and contractors and in which form to use them best.

Subsequently, the findings may have implications for training of lawyers. The study seems to confirm that the way in which lawyers are taught to negotiate tends to contribute to adversarialism rather than collaboration. Existing research suggests that it is mainly because of their training that lawyers are partisan advocates for the interest of their clients and are trained to be paranoid.[1] Acting in a distributive way is what lawyers are brought up with.[2] Research indicates, and the findings support, that this is the usual approach in legal proceedings and contract negotiations.[3] A skilled negotiator usually serves as an advocate for one party to the negotiation and attempts to obtain the most favorable outcomes possible for that party. Secondly, legal professionals have relatively little experience with "cooperative contracts." Moreover, from a legal point of view, one would also tend to avoid this uncertain and time-consuming form or restructure it with a more traditional contract. Using an open relational contract model simply does not match well with the fact that lawyers are trained to be suspicious and, therefore, try to regulate a relationship as much as possible providing optimal protection to the individual party they represent. It seems that to assist parties who desire a successful collaboration process, skills that are not strictly legal are needed.

[1] See Frankel (1980: 114).
[2] See Kritzer (1991); Menkel Meadow (2000).
[3] See Chapter 7 main study.

Some say commercial lawyers may need to become skilled in the process of human relationship building.[4] That would ask of lawyers to broaden their focus from precedents, the right-wrong, win-lose, fault blame way of thinking, which are part of the legal mindset, to more collaboration supporting approaches. Than the current legal education and professional training of legal professionals may have to be further adjusted to this.

The study also indicates the importance of the parties' (principals) perception of legal professionals and in particular lawyers. The construction industry is often regarded as a perfect environment for lawyers, as there is a social and economic paradigm of shifting of blame and avoidance of responsibility. This view of the lawyers' role is that of drafters of complex contracts for protection and cut-throat litigators whenever conflict arises. An opposing view is that lawyers act as drafters of construction contracts that facilitate the smooth operation of construction projects. Their main task from this perception is that of appropriately placing risk and minimizing the incidence of disputes.[5] Therefore, the role appointed to lawyers by clients and contractors becomes a very influential factor in the legal professional's impact on the collaboration process.

3 Limitations and further research

The study is limited to three literatures and existing empirical studies. In-depth additional empirical research may provide further insight into the extent to which successful collaboration is instrumental to project success.

Generally, further in-depth research into the various variables of collaboration is necessary. Additional research may be done in regard to 1) the effect of governance structures and lawyers on collaboration success, 2) external factors that influence collaboration, and 3) practical implications of theoretical recommendations as we propose them in the study.

First, future research may focus on the governance structures and role of lawyers in collaboration between entities in projects. After all, they are main "instruments" to implement theoretical findings on how to faciliate collaboration. Further research into the role of governance

[4] Association of Partnering Advisors (APA).
[5] See Uff (2001: 5).

structures may tell us more about the extent to which they are blocking or contributing cooperative behavior. For instance, these governance structures may provide for obstacles in terms of rules or norms that limit the parties in their ability to optimize their collaboration process. These structures may be legal rules, norms in the industry, or contract terms. They generally are meant to stimulate collaboration, but, in fact, do not always do so. They may have negative side-effects on other factors, and thus endanger successful collaboration. Research into these governance structures and their effects should not only include a thorough study of the characteristics of the various legal and non-legal governance structures, but also cover how they interact with each other and how they may be redesigned to more optimally contribute to collaboration.

Lawyers play essential roles at certain moments during the collaboration process between collaborating entities, particularly in their role in designing and maintaining collaboration in relational contracting models such as partnering and alliancing. The tradition of commercial lawyers lies in designing complex legal agreements to avoid future litigation and negligence claims. However, their involvement may hinder the creative fluidity that is needed to sustain commercial alliances and produce outstanding results.[6] It is difficult to draft a partnering contract which in effect seeks to define how parties should behave rather than spell out what they must or must not do.[7] Such contracts may be perceived as risky and, therefore, unattractive to legal decision-makers, especially lawyers. Should lawyers change their strategy when working for clients who want to use relational contracting models? What might lawyers do to adapt to the demand? Are they capable of this, should they want to do it?

Secondly, there are external factors which influence project performance. In the analysis we concentrated on internal factors and the collaboration process as instrumental variables in project performance. We indicated that there are other external factors that affect project performance, such as various stakeholder groups that want their interests taken into account and technical innovations. Particularly stakeholders may have a significant impact on project goals, construction time, costs, quality, and satisfaction. Including them in the construction process early on through consensus building,

[6] See Rooney (2003: 5) (on lawyers roles in construction projects).
[7] See Jones (2003: 83- 84).

and by using adequate conflict management tools, may further contribute to project success. Additional research is necessary into the various options of including stakeholders in projects with a high impact on their environment in various stages of their development.

Thirdly, continuing research may shed light on the actual impact of the factors and recommendations we draw from literature. Empirical study needs to be carried out to back up the findings. Studies at infrastructure projects must point out 1) to what extent these factors actually influence collaborative behavior, 2) what the most important factors are that do so, and 3) whether they positively or negatively influence project performance.

Subsequently, the practical applications of the findings may be further developed. This may be on the project level, on an industry level or on the governmental level of laws and regulations. A first step in that line is the development of instruments (applications of the checklists) for practical use at projects. This step includes the translation of the knowledge of factors and recommendations in actual instruments and testing of those instruments: contracts, codes of conduct, or charters that parties may use to organize the collaboration process at projects. For the development of instruments on a project level, empirical study is necessary to find out, for instance, what kinds of contracts and which kinds of terms work well, which should be the actual form of the contract (should have the characteristics of a charter, a manual for collaboration), and how to organize the process of drafting the contract. To enctheage successful collaboration at an industry level, industry rules or standard contract models may be a preferred medium. Collaboration may also be contributed to by laws or public regulations made by government rule makers. In further research the following questions are relevant: What may contract parties best do themselves on the level of individual projects? What is best regulated on the industry level, and what by law makers? How should such governance structures be designed? *Who* should be involved in the development and *how* should they be involved (for instance by using consensus building processes)?

A separate line of research may concentrate on factors and recommendations specifically dealing with problems in developing countries. Even though most of the problems and key success factors of infrastructure projects in developed and developing countries seem of similar natures, in this line of research we may include an empirical

study of the differences of applications and effects of recommendations in developed and developing countries. Researchers should address typical problems with realizing large construction projects in these countries, such as financers hesitation due to perceptions of high investment risks, cultural differences, lack of experience of contractors with large scale construction, corruption, and less well functioning legal systems.

Finally, apart from the specific situation of clients and contractors in infrastructure development, the role of governance structures in supporting collaboration may be studied in other kinds of relationships. Studies of governance structures in strategic alliances over longer periods of time or other cooperative forms where different incentives play a role, such as finance and maintenance contracts may be further investigated. This research may eventually lead to the development of governance structures that also include stakeholders with non-contractual relationships to projects.

NEDERLANDSE SAMENVATTING

Naar effectieve sturingsmechanismen voor contractuele relaties
Aanbevelingen voor project succes in infrastructurele projecten vanuit de sociale psychologie, economie en het recht

De bouwwereld heeft te maken met tegenvallende prestaties op infrastructurele bouwprojecten. Bij de aanleg van wegen, spoorverbindingen, bruggen, tunnels en andere infrastructurele werken zijn er vaak problemen met kwaliteit en planning. Niet alleen in Nederland maar wereldwijd staan infrastructurele projecten bekend om het feit dat ze de originele planning overschrijden en duurder uitpakken terwijl de kwaliteit van het eindproduct soms tegenvalt.

Een groot aantal partijen en allerlei omstandigheden beïnvloeden het bouwproces. Uit projectevaluaties blijkt echter dat de kwaliteit van de samenwerking tussen de opdrachtgevers en aannemers een factor is van doorslaggevend belang voor de projectprestaties.

In deze studie richt ik mijn aandacht op dit samenwerkingsproces en de daarvoor bestaande (juridische) kaders. Het begint met een analyse van uitdagingen voor opdrachtgever en bouwondernemingen in infrastructurele projecten en de bestaande moderne samenwerkingsvormen. Het biedt vervolgens een brede set van aanbevelingen voor succesvolle samenwerking. Die aanbevelingen maken deel uit van een systematische aanpak voor het optimaliseren van samenwerking en het creëren van sterke kaders voor succesvolle samenwerking gedurende de aanbestedings-, uitvoerings- en onderhoudsfase van een project. De aanbevelingen leid ik af uit theoretische en empirische literatuur over samenwerking tussen mensen en organisaties. De set van maatregelen kunnen partijen vervolgens implementeren in de governance structures voor projecten zoals de aanbestedingsprocedures, contracten, en gedragscodes.

In deel 1 van deze studie ga ik in op de dynamiek van de huidige samenwerking in infrastructurele bouwprojecten, de effectiviteit van samenwerkingsmodellen en analyseer de invloed ervan op project succes. In verschillende disciplines is onderzoek gedaan naar de invloed van aannemers en opdrachtgevers op project succes. Wereldwijd zijn de projectsuccesfactoren in infrastructurele projecten die een positieve bijdrage leveren; competenties van partijen,

commitment, communicatie over en weer, monitoring en feedback. Negatieve invloed hebben conflicten, bureaucratie, een extreem competitieve verlopend aanbestedingstraject, en te korte termijnen voor aanbieders om een bod goed voor te bereiden. Deze factoren zijn bepalend voor het samenwerkingsproces tussen opdrachtgevers en aannemers.

In deze studie definieer ik samenwerking (collaboration) als het interactieproces tussen opdrachtgevers en opdrachtnemers in het kader van een gezamenlijke activiteit (het project). Deze samenwerking veronderstel ik succesvol, indien de interactie leidt tot het halen van de projectdoelen (planning, budget en kwaliteit).

Ook in de verschillende rapporten over de huidige problematiek in de bouwwereld lijkt de onderliggende aanname dat succesvol samenwerken leidt tot project succes. Naar aanleiding van die rapporten zijn oplossingen gezocht in de richting van verbeteringen van samenwerking. De meest gebruikte maatregelen zijn de introductie van 'relational contracting models' zoals partnering en allliancing en de invoering van het instrument dispute boards (raden van deskundigen). Beide richten zich speciaal op het soepel laten verlopen van samenwerking, en het voorkomen en vroegtijdig oplossen van conflicten tussen de partijen.

De ervaringen met deze modellen zijn echter wisselend. Over het algemeen lijken dispute boards tot een vermindering van het aantal conflicten te leiden. Voor partnering en alliancing is het beeld echter minder rooskleurig. Studies die de effectiviteit van deze modellen analyseren geven weinig onderbouwing dat deze vormen in de praktijk substantieel bijdragen aan project succes. Het commitment aan de samenwerkingsprincipes van deze modellen lijkt problematisch. Factoren die het succes van deze vormen ondergraven zijn een gebrek aan goed conflict management, druk op aannemers, gebrek aan de juiste vaardigheden, problemen met implementatie en handhaven van een coöperatieve houding, en de kosten van implementatie. De variabelen die de prestaties negatief beïnvloeden lijken ook bij project partnering en project allianties tot problemen te leiden.

Om projecten gedurende de aanbesteding en uitvoering op koers te houden lijkt er behoefte te zijn aan een sterker (juridisch) kader voor samenwerking die weerstand biedt aan negatieve invloeden. Dergelijke kaders moeten de partijen vanaf de eerste interactie op het

spoor van succesvolle samenwerking zetten en gedurende het project die interactie effectief blijven ondersteunen. Klaarblijkelijk bieden de huidige sturingsmechanismen in projecten zoals cultuur, contracten en aanbestedingsmodellen onvoldoende bijdrage aan succesvolle samenwerking. Ze vormen daarvoor soms zelfs een bedreiging omdat ze 'competitie' en conflicten juist in de hand lijken te werken. In deze studie claim ik daarom dat succesvol samenwerking goed verankeren vraagt om een meer systematische benadering die verder gaat dan het bieden van contractmodellen.

Het onderzoek in deel 2 richt zich op het ontwikkelen van een dergelijke benadering. Drie belangrijke onderzoeksdisciplines staan centraal: sociale psychologie, economie en recht.

Ik splits het samenwerkingsproces tussen opdrachtgever en aannemers nader uit in activiteiten die in de loop van projecten het project resultaat beïnvloedden. Deze processen zijn: onderhandelen, het ontwikkelen van een (werk)relatie, het identificeren van mogelijke conflicten, en het actief oplossen van die conflicten (hoofdstuk 4-7). Voor elk van deze processen identificeer ik de factoren die of bijdragen aan succesvolle samenwerking of het bedreigen. Ik richt me daarbij op theorieën en empirische studies die specifiek relevant zijn voor samenwerkingssituaties zoals tussen opdrachtgevers en aannemers in het kader van infrastructurele projecten. Op basis van deze theorieën formuleer ik de aanbevelingen voor het implementeren en handhaven van een succesvol samenwerkingproces dat partijen helpt projecten tot een succes te maken.

In deel 3 behandel ik *hoe* en *waar* de aanbevelingen in de setting van infrastructurele projecten van waarde kunnen zijn. Ik doe voorstellen voor het gebruik van de aanbevelingen 1) ter versterking van mechanismen die samenwerking versterken en project succes beïnvloeden, 2) het gebruik in bepaalde fasen in het bouwproces en in de typische samenwerkingssituaties binnen die fasen, en 3) ik bespreek geschikte governance structures om ze te implementeren. In hoofdstuk 9 presenteer ik de aanbevelingen in 'academische checklists'. Ik sluit af in hoofdstuk 10 met de belangrijkste conclusies, implicaties voor theorie en praktijk en suggesties voor verder onderzoek.

REFERENCES

Ackoff, R. et al. (1967). "A Model Study of Escalation and De-escalation of Conflict." Philadelphia: University of Pennsylvania.

Anderson, J.C. and Narus, J.A. (1990). "A model of distributor firm and manufacturer firm working partnerships." Jthenal of Marketing Vol. 54 pp.42- 58.

Axelrod, R. (1976). "Structure of Decision." Princeton, NJ: Princeton University Press.

Axelrod, R. (1984). The Evolution of Cooperation. Basic Books, New York

Axelrod, R., and Hamilton, W. D. (1981). "The evolution of cooperation." Science, 21, 1390-1396.

Axelrod, R. (1997). "The Complexity of Cooperation: Agent-Based Models of Competition and Collaboration." Princeton, NJ: Princeton University Press.

Baron, J. (2008). "Thinking and Deciding." Cambridge University Press.

Bayliss, R., Cheung, S.O. et al. (2004). "Effective partnering tools in construction: a case study on MTRC TKE contract 604 in Hong Kong." International Jthenal of Project Management 22(3): 253-263.

Bryson, J.M. and Crosby, B.C. (2008). "Failing into cross-Sector Collaboration Successfully." In Bingham and O'Leary,R. Big Ideas in Collaborative Public Management, London, Sharpe.

Conlin, J.T. et al. (1996). "The Relationship between Construction Procurement Strategies and Construction Contract Disputes." In Taylor, R.G. (e.d.) Proceedings of CIB W92 North Meets South: Developing Ideal, University of Natal, Stheth Africa

Costantino, C.A. and Merchant, C.S. (1996). "Designing Conflict Management Systems: A Guide to Creating Productive and Healthy Organizations." Jossey-Bass, San Franscisco.

Deutsch, M. (1973). “The Resolution of Conflict.” Yale University Press, New Haven, CT.

Deutsch, M., Coleman, P. and Marcus, E. (eds) (2006). “The Handbook of Conflict Resolution: Theory and Practice.” 2. nd. edition. San Francisco, Jossey-Bass.

Felstiner W. L. F., Abel, R.L. and Sarat, A. (1981). “The Emergence and Transformation of Disputes: Naming, Blaming and Claiming.” 15 Law and Society Rev 631.

Fenn, P. & Gameson, R. (1992). “Construction conflict management and resolution.” London, Taylor and Francis.

Fleerackers, F. (2002). “Het Vel van de Rechter, Van Oordeelsvorming tot Conflictregeling.” Larcier, Gent.

Frankel, T. (1980). “The Regulation of Money Managers : the investment compagny act and the investment advisers act.” Boston, MA : little, Brown and company.

Granovetter, M. (1985). “Economic Action and Social Structure: The Problem of Embeddedness.” American Jthenal of Sociology, 91(November): 481-510.

Jones, D. (2003). “The role of lawyers”. In Jones, S. et al (eds) Partnering and collaborative working. London, LLP: 83-98.

Johnson, D.W. and Johnson, R.T. (1989). Cooperation and Competition: Theory and Research”.” Edina, Minn. : Interaction Book Company

Kissinger, H. (1969). "The Vietnam negotiations." Foreign Affairs, 47(2), 211-234.

Korobkin, R. B. (2003). “Bounded Rationality, Standard Form Contracts, and Unconscionability.” University of Chicago Law Review, Vol. 70, p. 1203.

Kritzer, H.M. (1991). “Let's Make a Deal: Understanding the Negotiation Process in Ordinary Litigation.” Madison: University of Wisconsin Press.

Kumaraswarmy, M. (1996). “Is Construction Conflict Congenital.” ARCO Conference, Sheffield, UK.

Lewicki R. J., et al. (2007). “Essentials of Negotiation.” Ftheth Edition; New York, NY: McGraw-Hill/Irwin.

Lui, S. and Hang, Y., (2005). “An action pattern model of inter-firm cooperation.” Jthenal of Management Studies, Vol. 42, No. 6, pp. 1123-1153, September 2005.

Marsh, P.D.V. (2001). "Contract negotation handbook." Hampshire, Gower.

Menkel-Meadow, C. (2000). “When winning isn’t everything: the lawyer as problem solver.” 28 HOFLR 905-910.

Mnookin, R. H. Peppet, S. R. and Tulumello, A.S. (2000). “Beyond winning: negotiating to create value in deals and disputes.” Cambridge, Mass.: Belknap Press of Harvard University Press.

Mohr, J., and Spekman, R. (1994). “Characteristics of partnership success: partnership attributes, communication behavior, and conflict resolution techniques.” Strategic Management Jthenal 15 (February): 135-152.

Morgan, R. M., and Hunt, S. D. (1994). “The commitment-trust theory of relationship marketing.” J. Marketing, 58, 20–38.

Negotiation theory and practice (2d ed., LexisNexis 2007) (originally published as understanding negotiation).

Ock, J.H. and Han, S.H. (2003). "Lessons learned from rigid conflict resolution in an organization: Construction conflict case study." J. Manage. Eng, vol. 19, no. 2, pp. 89–89, 2003.

Office of Government Commerce. (1999). "Achieving excellence in construction," OGC.

OGC. (2003). "Achieving excellence guide 5: the integrated project team," London: Office of Government Commerce.

OGC. (2003). "Effective partnering: an overview for customers and suppliers," London: Office of Government Commerce.

Olander, S., Landin, A., (2005). "Evaluation of stakeholder influence in the implementation of construction projects." International Jthenal of Project Management 23, 321–328.

Parkhe, A. (1993). 'Strategic alliance structuring, a game theoretic and transaction cost examination of interfirm cooperation'. Academy of Management Jthenal, 36, pp. 794 – 829.

Pondy, L.R. (1967). "Organizational conflict: Concepts and models." Administrative Science Quarterly I.2 : 296320.

Pruitt, D. G. (1981). "Negotiation behavior." San Diego, Academic Press.

Pruitt, D.G. and Rubin, J.Z. (1986). "Social conflict: Escalation, stalemate, and settlement. "New York, McGraw- Hill.

Pruitt, D.G. (1998). "Social conflict" In. Gilbert et al (eds). The Handbook of Social Psychology, N.Y., MacGrawHill.

Putman, L. (2006). "Communication and interaction patters", In Kupfer Schneider, A. and Honeyman, C. The negotiator's fieldbook, ABA (385-394).

Rooney, G. (2003). "Project alliancing and relationship contracting – Conflict embracing project delivery systems," SSRN.

Rubin, J. & Brown, B. (1975). “The social psychology of bargaining and negotiation.” New York: Academic Press.

Rubin, J. (1991). "Some wise and mistaken assumptions about conflict and negotiation." reprinted in Folberg J., Golann D. (2006). Lawyer negotiation Theory, practice and law. Amsterdam, Kluwer.

Schmid, A. A. (2004). “Conflict & Cooperation: Institutional & Behavioral Economics.” London, Blackwell.

Shariff, K. Z. (2003). “Designing Institutions to Manage Conflict: Principles for the Problem Solving Organization.” 8 Harv. Negotiation L. Rev. 133.

Simon, H. (1955). “A behavioral model of rational choice.” Quarterly Jthenal of Economics, 69:99–118.

Smith, S. and Martinez,J. “Dispute System Diagnosis & Design”, 14 Harvard Negotiation Law Review (Spring 2009).

Uff, J. (2001). “Are we all in the wrong job? - Reflections on construction dispute resolution.” Society of Construction Law.

Ury, W., Brett, J. and Goldberg, S. (1993). “Getting Disputes Resolved;” Jossey Bass Publishing, San Francisco.

Van Lange, P. A. M., & De Dreu, C. K. W. (2001). Social Interaction: Cooperation and competition. In M. Hewstone & W. Stroebe (Eds.). Introduction to Social Psychology (Vol. 3, pp. 341-370). Oxford, England: Blackwell.

Van de Vliert, E. (1997). “Complex interpersonal conflict behavithe: Theoretical frontiers.” Hove, UK Psychology Press.

Yates, D. J. (1998). “Conflict and Disputes in the Development Process; A transation cost economic perspective.” online paper.

THE AUTHOR

Peter Kamminga is a senior researcher at TISCO (Tilburg Institute for Interdisciplinary Studies of Civil Law and Conflict Resolution Systems) and lecturer at the Faculty of Law of Tilburg University. He is a research affiliate at Stanford University (Gould Center) and UC Hastings College of the Law. He published on topics such as contracts and cooperation, conflict resolution, access to justice, and claim handling. Before joining TISCO, he has practiced law and was legal advisor at one of the Netherlands biggest law firms.

Peter's research has strong roots in practice. The field he currently focuses on is complex contractual relations such as in the (international) construction industry. He contributed to effectively organizing the interactions between victims, their representatives and insurers in the Netherlands during the personal injury claim handling process. This effort resulted in the Dutch "Code of conduct for personal injury claim handling" developed together with victims organizations, lawyers and other parties in the sector.

Focal points in his current research are the roles of rulemaking procedures, conflict resolution mechanisms, contracts, and lawyers in facilitating collaboration. He studies how insights from legal studies as well as social psychology, economics, and organizational theory may contribute to the design of effective governance structures.

Contact details:

Dr. Y. Peter Kamminga
TISCO/ Tilburg University
P.O. Box 90153
5000 LE Tilburg
+ 31 625261448
y.p.kamminga@uvt.nl
kamminga@stanford.edu

Y. Peter Kamminga